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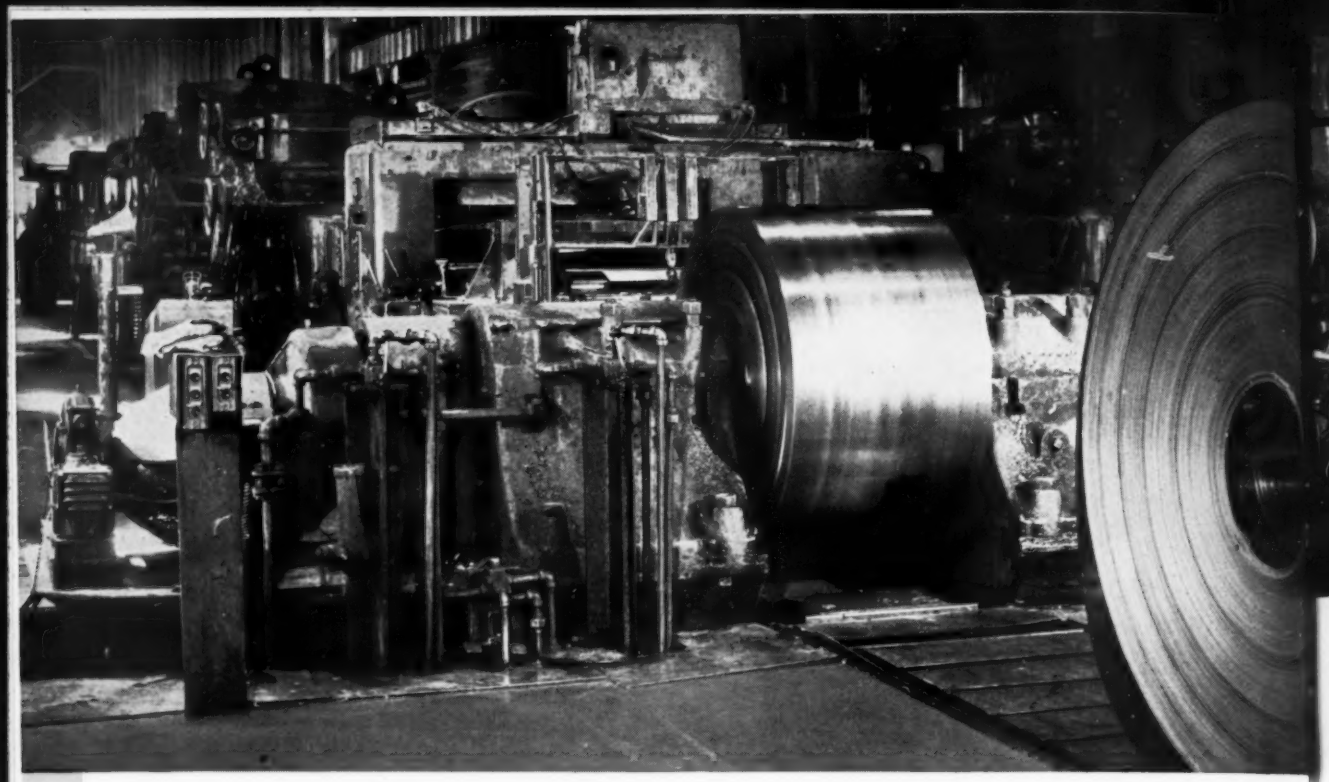
FRIT from CENTURY

FRIT MASTERS

CENTURY VITREOUS ENAMEL COMPANY, 6641-61 S. Narragansett Ave., Chicago 38, Ill.



Entrance end of cleaning line at Weirton Steel Company, Weirton, W. Va. Steel whizzes through line at about 1500 feet per minute. Note streaky, soiled appearance of roll mounted on mandrel.

Every day is wash day in this giant tin mill ... steel comes clean in seconds with PENNSALT CLEANER

In Weirton's tin plating operations—as in most other tin mills in America—strip steel gets a Pennsalt metal cleaner bath prior to plating! There must be reasons, and here they are:

Pennsalt alkaline cleaners—which prepare the steel for plating—were developed to meet actual plant conditions. As a result, rejects due to faulty plating caused by dirty steel are held to an absolute minimum.

Pennsalt cleaners are anhydrous—you don't pay for excess water. On top of that, most of these cleaners are fused mixtures, giving you a uniform solution every time you make up a new charge.

And that's not all! Whether you use Pennsalt cleaners prior to electroplating, porcelain-enameling, anodizing, or painting—you can be sure of getting top quality at low cost per pound. Why? Because Pennsalt produces its own alkalies—manufactures its cleaners right from the ground up. As a *basic* producer of chemicals for 100 years, Pennsalt is known for its high-grade products, with prompt delivery at a fair price.

Pennsalt's extensive research facilities are at work constantly . . . testing . . . experimenting . . . improving. The main objective of our scientists and technicians is to continue to provide you with the most effective cleaning compound you've ever used.

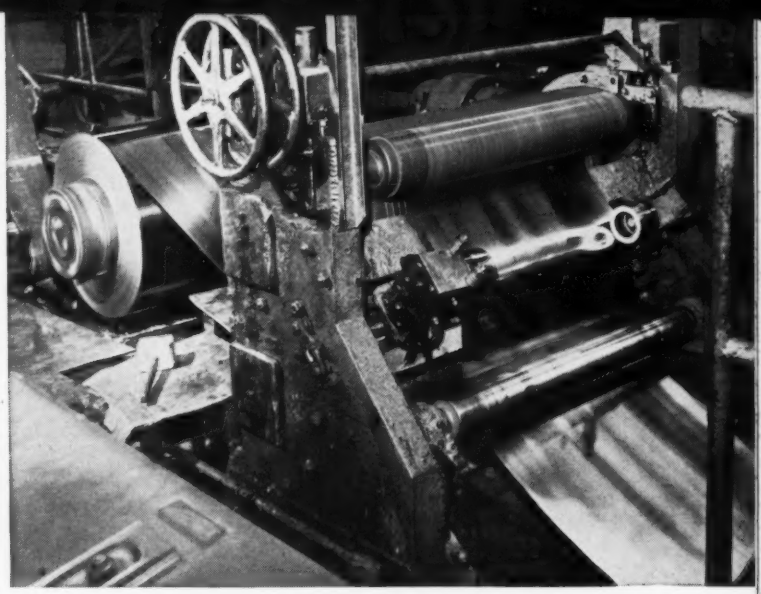
Get the benefits of Pennsalt experience in the metal cleaning field. Just call in a Pennsalt metal cleaner expert . . . he'll be glad to help you with your problems. Special Chemicals Department, Pennsylvania Salt Manufacturing Company, Philadelphia 7, Pa.

PENN SALT

metal cleaners

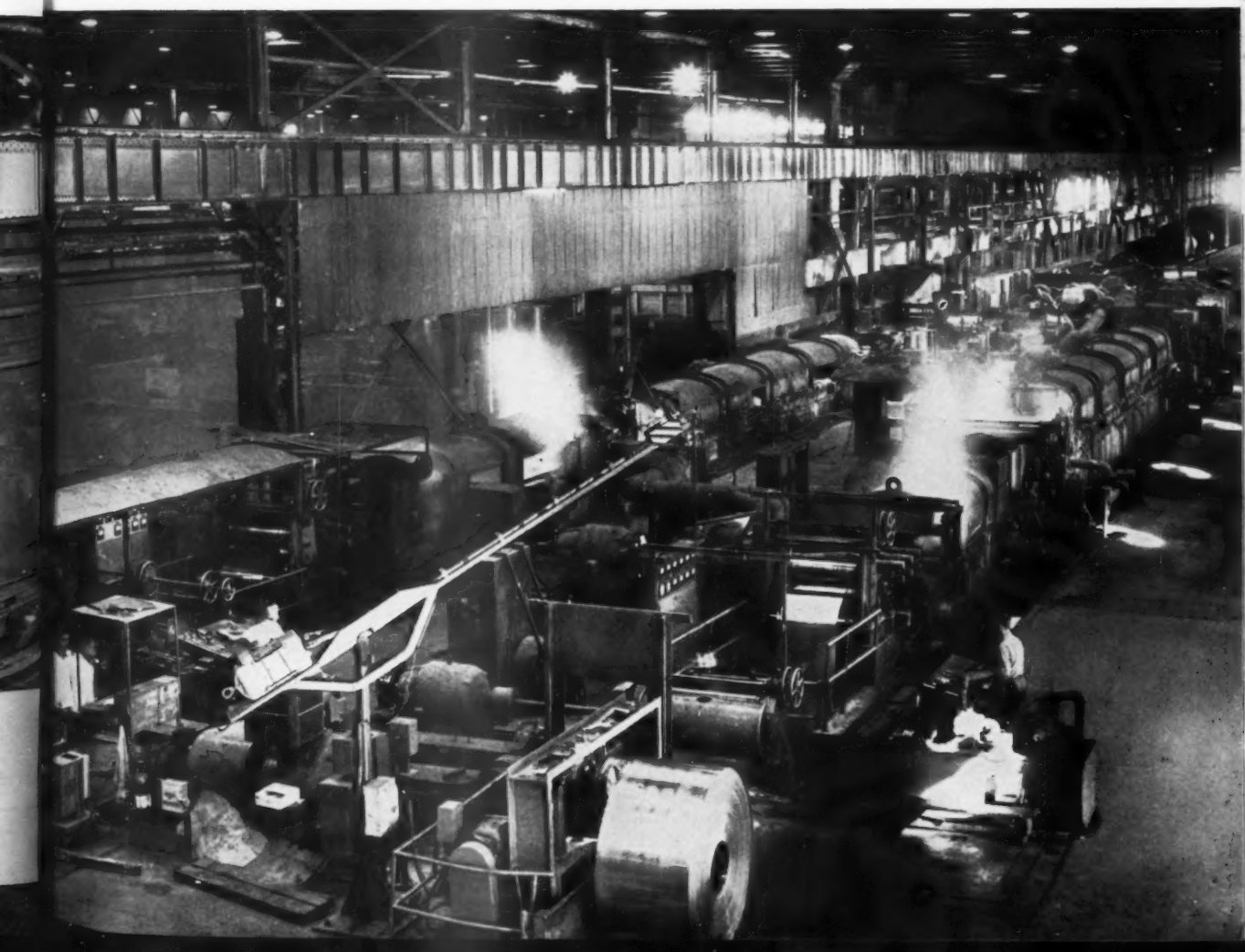
PROGRESSIVE CHEMISTRY FOR A CENTURY

Dip and scrubber tank, where Pennsalt cleaner is used. This operation is typical of efficient Weirton method. Pennsalt #30 has to get steel clean in just about two short seconds.



Tension rolls and rewinding mandrel. Steel is so well cleaned that fin masher and lower guide roll are reflected on strip. There is no indication of smut build-up on guide rolls.

View of Weirton plant from exit end of cleaning line. Coil on weighing scale shines brilliantly, as does steel passing down into looping pit. Weirton, through use of Pennsalt cleaners, does excellent cleaning job.



Improved Sag Resistance
makes Thinner Gauges Practical

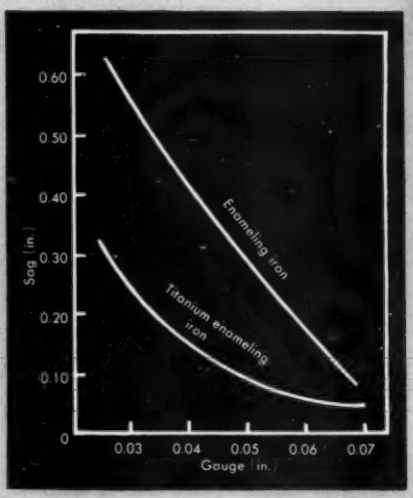
TITANIUM IRON for vitreous ENAMELING

The improved sag resistance of Titanium-bearing Enameling Iron makes it possible to avoid firing-distortion with lighter gauge sheets. This is a worthwhile economy that enamelers are using to advantage. In addition to sag and warp resistance, Titanium Enameling Iron, containing sufficient titanium to stabilize all the carbon, offers other desirable properties:

1 **GROUND COATS ELIMINATED:** Under proper shop conditions, cover coats may be applied directly to the base metal. These thin opaque coats reduce the hazards of chipping and breaking. Adhesion is excellent.

2 **FISHSCALING AND BOILING REDUCED:** During years of research and production, not one case of fishscaling has been reported. Blisters in the finished enamel are also eliminated.

3 **PRODUCTS MORE ATTRACTIVE:** In fabricated shapes warping, wrinkling and stretcher strains are avoided because of the increased sag resistance and excellent drawing qualities of Titanium Enameling Iron.



The Titanium Alloy Mfg. Division developed this new enameling process and produces the titanium alloy used in the manufacture of this enameling iron. For samples see your steel supplier. Detailed technical information may be obtained from our field engineers by writing to our New York Office.

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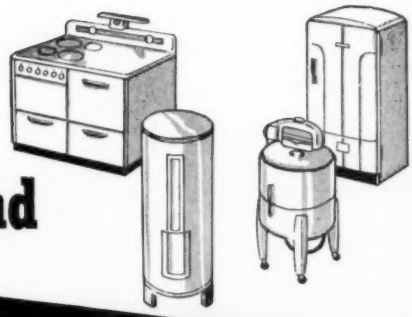
TITANIUM ALLOY MFG. DIVISION
NATIONAL LEAD COMPANY
Executive and Sales Office: 111 BROADWAY, NEW YORK CITY · General Offices, Works, and Research Laboratories: NIAGARA FALLS, N.Y.

Camera: Contax, with F 1.5 coated lens (no filter)—Film: 35 mm XX —Exposure: 125th second at F 8—Scene: bright sky, heavy shadows.

"Fast Water" By Dana Chase

TEN DOLLARS will be paid to any *finish* reader for a good quality black on white 8 x 10 enlargement if it is chosen for this photo page. If there are sufficient "camera bugs" among *finish* readers we will continue the feature. Sports subjects or plant operations will be given preference.

Your editor played "hookey" at the time when he normally would be writing copy for "The Finish Line," which usually occupies this page, taking the first opportunity in two years for a brief fishing trip in Canada. The accompanying photograph represents one of many brought back from this trip.



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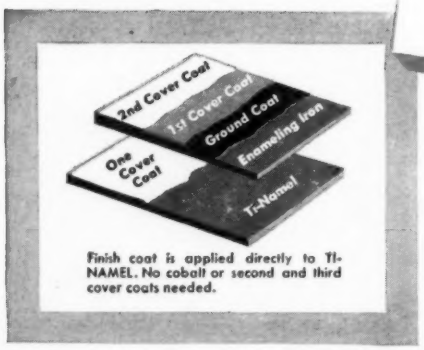
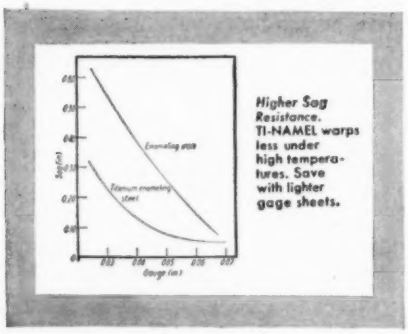
covers WHITE with only one coat!



Finish coat is applied directly to TI-NAMEL. No cobalt or second and third cover coats needed.



Higher Sag Resistance. TI-NAMEL warps less under high temperatures. Save with lighter gage sheets.

Savings in Your Plant?

Yes—when you can use TI-NAMEL with a thinner (yet just as white) coat. One coat instead of three or more means impressive savings in man-hours and materials. Far less frit required per job. Use lighter gage sheets safely, too, for TI-NAMEL resists warping even under high temperatures. And TI-NAMEL has drawing properties equal to drawing quality sheets.

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With TI-NAMEL, a thinner coat of porcelain (approximately as thin as an organic finish) is made possible—and that means far less chipping in transit and in *use,* too. Further savings: you can safely use lighter shipping crates, effecting important reductions in crating costs, tare weight and shipping costs.

Can You Use TI-NAMEL—

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Solid-phase hot pressure welding

a specialized fabrication process scientifically refined from a principle centuries old

by Gilbert C. Close • FINISH CORRESPONDENT

finish

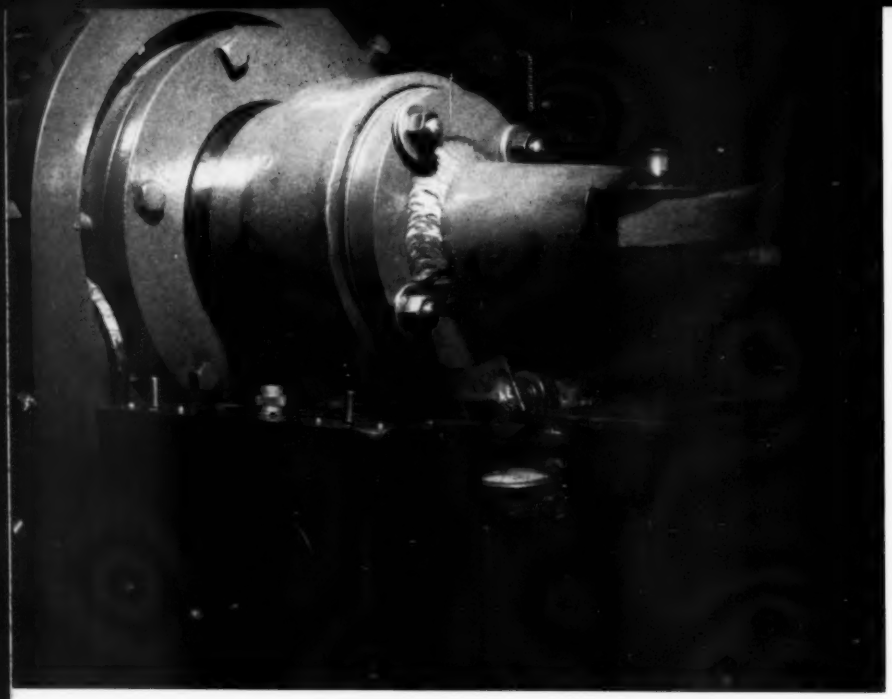
Quite often industrial fabrication processes are developed which, because of the specialized nature of their initial application, escape entirely the notice of other types of industry where they could be employed with complete success. This, undoubtedly, is the status of hot pressure welding at the present time. Hot pressure welding has proved extremely versatile and useful in certain fields, but as yet, outside of a few job shops, has received scant attention from industry in general. The process offers many advantages over other welding processes in certain types of work, and some of these advantages could be used very profitably in the home appliance and allied metal products industry.

The principle used in solid-phase hot pressure welding is not new. The same principle was employed by ironsmiths centuries ago when they heated two pieces of iron in a forge, then welded them together by means of hammer blows. But in its modern aspect, the process has been scientifically refined. The age-old principle is abetted by automatic control of the heat applied to reduce the metal to the correct plastic state, by close-fitting of the butting surfaces of the weld to eliminate air during the heating cycle, and by applying controlled pressure automatically with an upsetting machine to weld the parts together.

Basic advantages of the process

Basic advantages of solid-phase hot pressure welding include: (1) adaptability of the process to welding high- and low-carbon steels, (2) smoothness and uniformity of the finished weld, (3) very few faulty welds that must be rejected, (4) weld strength equaling or exceeding that of the parent metal, (5) relatively low unit cost in repetitive fabrication work, and (6) retention of basic metal metallurgical characteristics due to the fact that no filler metal is used. →

Claude C. Slate at the controls of his home-built hot pressure welding machine. Note circular heating head used in heating this high alloy steel ring which will subsequently be machined into a high pressure gasket.



Pressure platen and automatic controls on hydraulically operated Slate machine. Venier scale for rough travel distance; dial gauge (lower center) for close adjustment of upset travel.

This last advantage, retention of basic metal metallurgical characteristics, is extremely useful in the fabrication of some products. When maximum corrosion resistance is required for instance, and 18-8 stainless steel is being used, the parts may be pressure welded without the use of a filler metal, and the finished weld will retain the corrosion resistant characteristics of the parent metal.

With proper equipment, hot pressure welding can be reduced to a series of operations that do not require specialized experience. The butting areas to be welded are first ground or machined until they match perfectly. For repetitive work, this could be accomplished by an automatic setup. The parts are then placed in an upsetting machine, and the butting areas are brought together under an initial pressure of about 500 lbs. per square inch of cross sectional area.

This initial pressure application on the close-fitting parts effectively excludes all air that would cause oxides to form during welding. Heat is then applied by means of an oxy-acetylene heating ring or head. This heating head is round when used in welding bar or square stock. When heating irregular shapes, such as in butt-welding of railroad rails, the heating head conforms to the cross-sectional configuration of the work involved. Blowpipes in the heating head may be varied in size according to the thickness of the metal at any particular point so that all parts of the weld area are brought to the right plastic condition at the same time. Thus, in pressure butt welding of railroad rails, the blowpipes heating the rail proper must be somewhat larger than the blowpipes heating the web and flange.

The heating head is moved back and forth across the weld area during heating, far enough on each side of the weld juncture to assure even heating and reduction of the metal to a plastic state far enough back from the weld line to encompass necessary upset travel. When the metal has reached the proper upsetting temperature (from 2200 to 2300 degrees F. with alloy steels), upsetting pressure is applied and the two parts are forged together. The upsetting pres-

Shown is a "C" type jig developed for pressure welding closed rings. Such rings are very difficult to flash-weld due to bypassed current through the body of the ring.

Shown is a typical pressure weld. Note the evenness of the contour. A light sandblast will remove the superficial scale. Weld line visibility is only surface deep.

sure used will vary with the alloy, but is generally between 2500 and 4000 lbs. per square inch of cross-sectional area.

Surface-smoothness an important feature

Unlike the jagged fragments of metal produced by upsetting a flash-weld, the upset metal produced by pressure welding bulges into an even contour, is surface-smooth, and need not be removed unless the part is subsequently machined or appearance requires it. Weld strength in pressure welded mild steels, even after the upset metal has been machined away, will be higher than that of the parent metal. The same applies to alloy steels. In pressure welded Monel, or in stainless steels in the 300 to 400 series, weld strength will average about 85 per cent that of the parent metal. Rejects are few and far between. In one large pressure welding jobbing shop, less than 2 per cent of 3000 welds were rejected after Magnaflux inspection. Of these rejects, a large majority occurred in stainless steel.

Metallurgical effect minimized

In a weld area hardness survey using SAE 3140 steel, in the "as welded" condition, hardness varied from 87.8 Rockwell B in the parent metal to a maximum of 98 Rockwell B in the hardest portion of the upset metal. Following flame normalizing of the weld area, this variation was reduced to 84.9 to 87.2 Rockwell B. After furnace normalizing, the total variation between parent metal and upset weld metal was from 82 to 84 Rockwell B. This denotes quite conclusively that the relatively low heat used in upsetting has very little if any permanent metallurgical effects on the parent metal.

A machined pressure weld cannot be detected by the eye. Etching of the metal will bring out the curved metal grain flow caused by upsetting, but even this fails to reveal a clean demarcation line. When a pressure weld is properly accomplished, there is no chance for the oxide and other inclusions that haunt ordinary fusion welding, and gas and blow holes are effectively eliminated by the high

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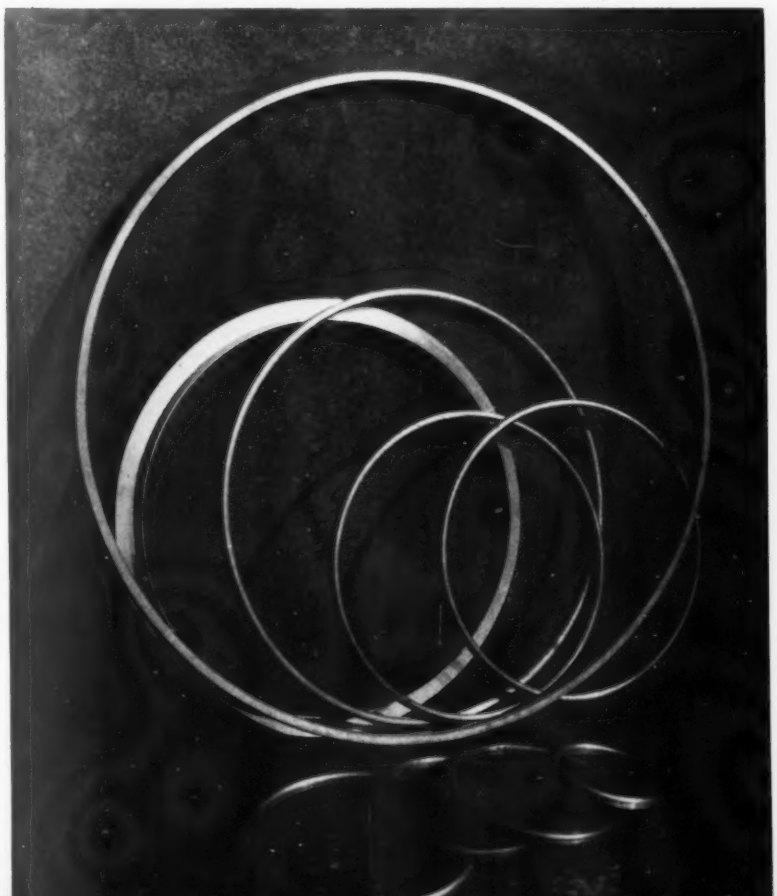


Typical pressure welding ring components. Flanged ring is jet engine blast tube support. Other rings are high pressure gaskets for use in oil line valves. Weld line is not visible.

Measurement of surface roughness

Part II—indicating that the stylus type of surface analyser can be adapted to paint industry requirements

by E. Green • METROLOGIST, NATIONAL RESEARCH COUNCIL, OTTAWA, ONTARIO, CANADA

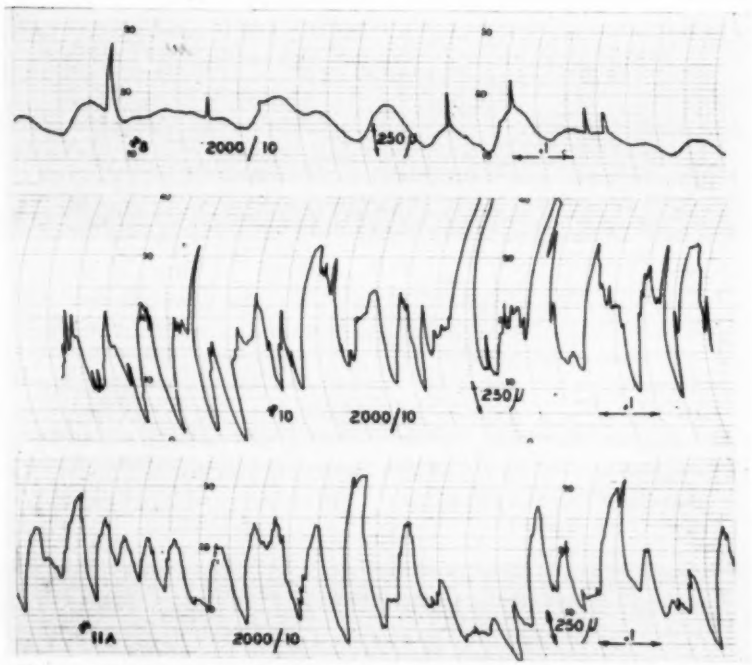
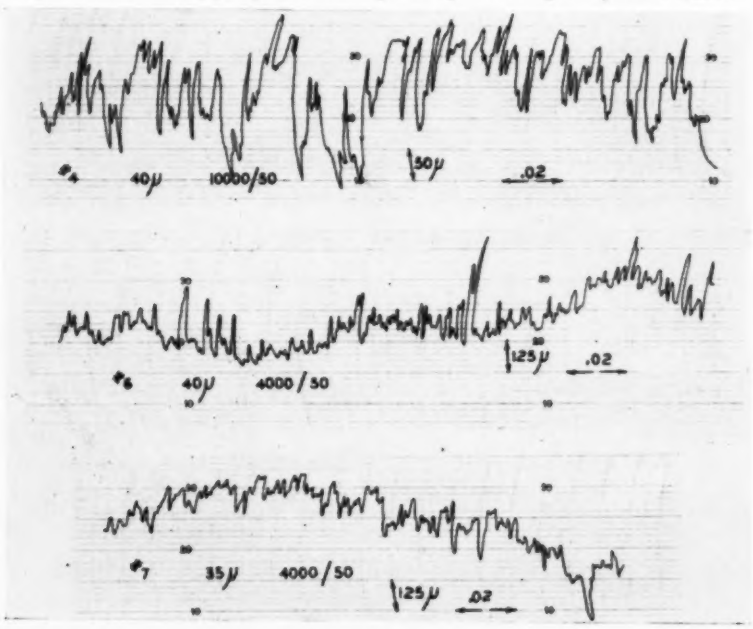


Figure 6—Traces of painted surfaces where the paint was applied by brush.

Figure 7—Traces of flat paint showing short-pitched high-amplitude waves.



THE possibility of adapting at least one of the devices described in Part I to the needs of paint technicians has been shown to be feasible by the results of experiments in which a stylus type of surface analyser was used to investigate the roughness of typical specimens of painted surfaces.

The measurement of painted surfaces

The stylus instrument was designed to measure the roughness of metallic surfaces and even with a stylus pressure of 0.1 gram the softer metals are scratched. This fact made it necessary to investigate the scratching effect of the diamond on painted surfaces before any readings, given by the instrument on such surfaces, could be considered as reliable.

A few preliminary runs over painted surfaces showed that traces of the surfaces were fairly reproducible over the same diamond path. The discrepancies between two successive traces were less than 10 micro inches when the trace was of a surface with short-pitched high-amplitude waves (Fig. 5 lower). Such a trace necessitates violent movements of the working parts of the surface analyser and, therefore, constitutes the most severe test. A smooth, well rounded trace is reproduced with greater accuracy.

The reproduction of a trace by the recorder does not, in itself, constitute proof that the distortion of the surface under the stylus pressure may be ignored. To further verify that the scratch effect was of negligible importance, the widths of the scratch marks on two painted surfaces were measured optically. The magnification used was approximately 670x. The measured widths of the scratch marks on the two paints were

0.000118 inches (3.0 microns) and 0.000141 inches (3.6 microns) giving calculated depths of 19 and 28 micro inches respectively. An examination of a length of scratch mark did not reveal any appreciable necking or lack of parallelism of the edges of the scratch. This would indicate that the depth of scratch was uniform across the surface.

As a cross-check on the measurements of the scratch widths on paint, the scratch width on aluminum was measured, by the same optical method, as 0.000079 inches (2.0 microns) giving a depth of 8 micro inches. This is in agreement with the findings of other investigators[2].

The traces of a few tests carried out on different paint surfaces indicated that the instrument working stroke of about 3/8" was insufficient to accommodate the long period waves on some of the paint surfaces and, consequently, give a fair representation of those surfaces. A few modifications to the instrument enabled a trace to be taken over a surface length of 4½" at a magnification of 10x in the direction of traverse.

The experiments on painted surfaces indicated that the pen recorder traces exhibit characteristics which may be associated with the particular paint imperfection producing that trace. This is in accord with the generating process of a machined finish governing the characteristics of the trace.

A paint applied by brush, when traced across the brush marks, exhibits regularly pitched waves (Fig. 6). The three specimens Nos. 8, 10, and 11A (Fig. 6) had average roughness readings (on the meter) of 37, 100, and 83 micro inches respectively. With the exception of specimens Nos. 8, 10, and 11A, all paint surfaces used in this investigation had been sprayed and, with the exception of specimens Nos. 7 and 16, were on sheet steel or tin plate.

Flat paint gives a trace showing short-pitched high-amplitude waves (Fig. 7). Specimen No. 6 (Fig. 7) was an oxide primer with an average roughness of 40 micro inches. The

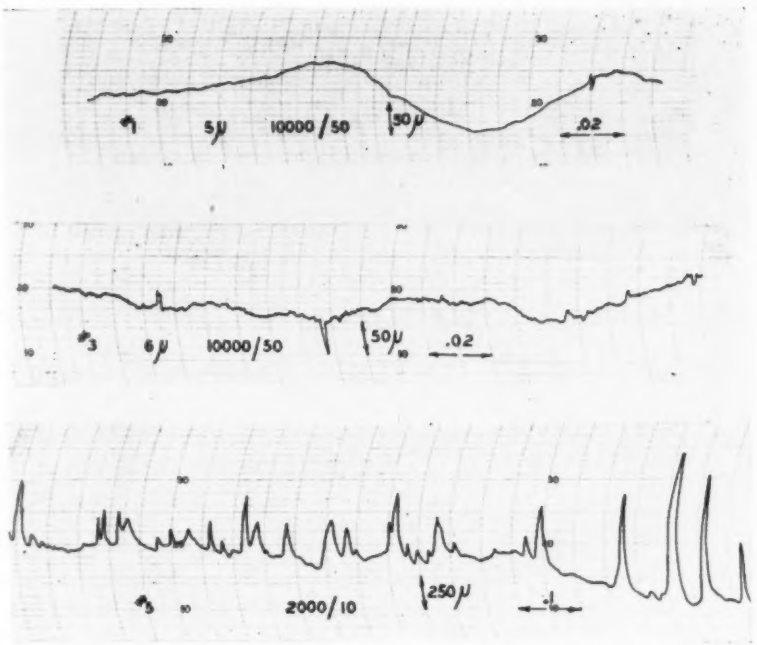
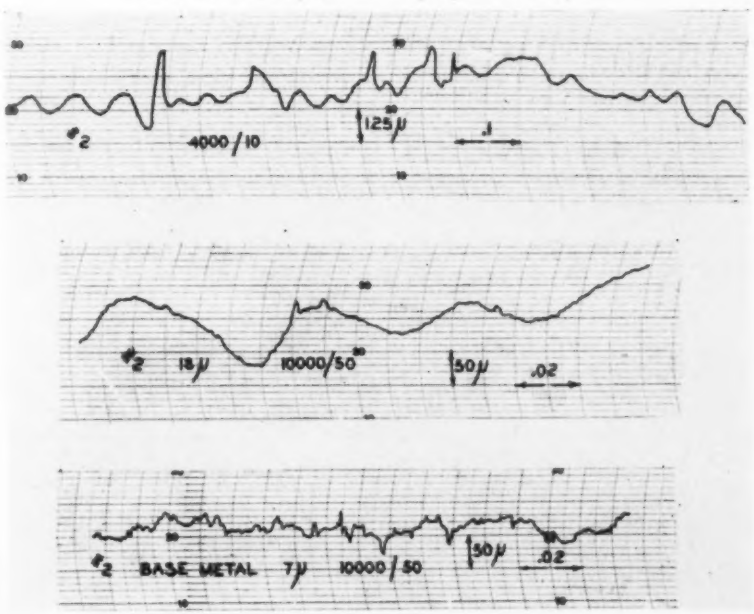


Figure 8 — Traces of painted surfaces with following characteristics: No. 1, "orange peel"; No. 3, "weathered"; and No. 5, "detector paint".

total heights of the irregularities are from 10 to 400 micro inches. A second trace of the surface at a horizontal magnification of 10x indicated that the general height of the irregularities was about 30 micro inches, and they were superimposed on waves of 0.1 inch pitch and 125 micro inch amplitude. These longer wavelengths can be detected in the trace No. 6. Specimen No. 7 was a flat paint on masonite.

An "orange peel" imperfection of the paint surface gives well rounded waves in the trace (specimens Nos. 1 and 2, Figs. 8 and 9). A trace resembling that of the "orange peel" is given by a "pebbled" effect. The difference between the traces would appear to be that the curves of the

Figure 9 — Trace of a painted surface with an "orange peel" effect and the trace of the underlying metal surface.



2. Schlesinger, G.—"Surface Finish", Report of Research Department of Inst. of Prod. Engs. 1942.

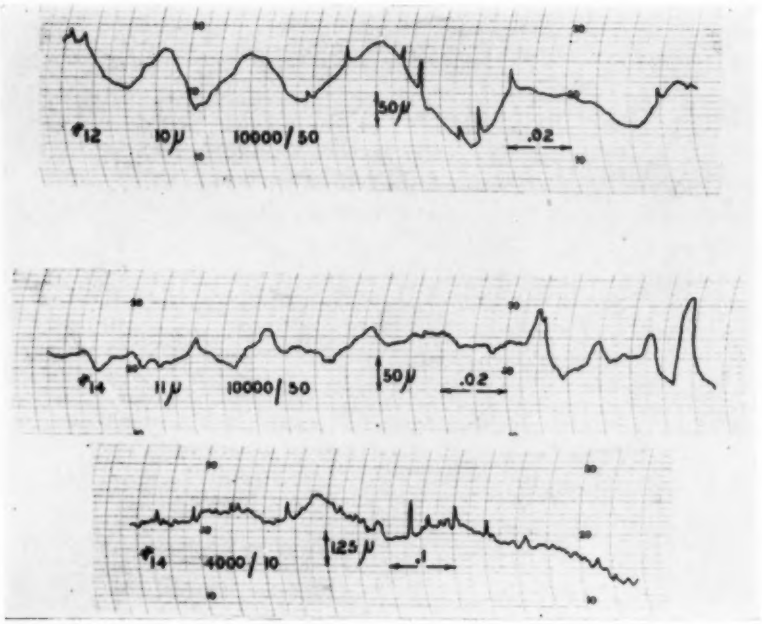


Figure 10—Traces of painted surfaces with the following characteristics: No. 12, "pebbled"; and No. 14, "silking".

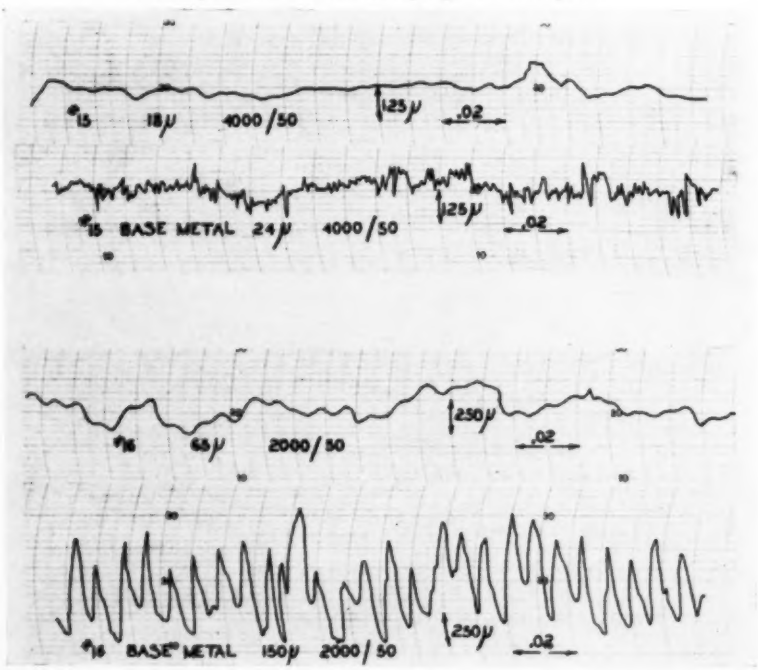
latter are not quite so rounded in the roots; specimen No. 12 (Fig. 10) also showed protrusions on the waves.

One medium gloss enamel surface had been "weathered" and the trace showed a micro roughness of 2 or 3 millionths of an inch (specimen No. 3, Fig. 8). This fine micro finish is not detectable in any of the other traces.

A white gloss paint had silking lines spaced 0.01 inch and 10 to 20 micro inches deep (specimen No. 14, Fig. 10).

Specimen No. 5 was a yellow green detector paint and the grinding of the pigment had been rather poor. The included particles are represented by the peaks (Fig. 8), the largest of which is 0.0012 inches.

Figure 11—No. 15, traces of a varnished surface and the underlying metal; No. 16, trace of a painted surface having waves of the same period as those present in the underlying metal surface.



To confirm that the smaller irregularities of the underlying metal surface were not influencing the painted surface, measurements were made on the metal of three specimens before spraying. The paint surface of specimen No. 2 (Fig. 9) does not have any relation to the underlying metal. A coat of varnish 0.001 inch thick smoothed out the peaks and grooves present in the base metal No. 15 (Fig. 11). Specimen No. 16 (Fig. 11) was a specially prepared steel block. The face of the block was machined to give waves 0.008 inch pitch and 0.0006 inch total height. A coat of paint 0.002 inch thick was then sprayed on the face. A trace of the paint surface showed a wave form with a regular pitch of 0.008 inch, but the amplitude of the tool marks had been suppressed.

Conclusion

The experiments conducted so far on painted surfaces have been brief, but they do indicate that the stylus type of surface analyser can be adapted to meet the requirements of the paint industry. To accommodate the widely varying wavelengths, which are an integral part of the paint imperfection, it would appear that the surface analyser should have a wide range of horizontal magnifications. If this is not so, either the details of the finer wavelengths will be blurred on a low magnification, or an unmanageable length of chart will have to be run off at a high magnification to obtain a representative trace of the longer wavelengths.

The actual measurement of the surface roughness would eliminate the possibility of a surface imperfection consisting of long-period high-amplitude waves being classed as smoother than an imperfection of shorter-period and lower-amplitude waves. This can be usual when examination is on a visual basis only.

Adapted for *finish* from a paper presented before Toronto Regional Conference of the Protective Coatings Group of the Canadian Chemical Society.

Promise and threat in current American business

by Edwin G. Nourse • FORMER CHAIRMAN OF THE PRESIDENT'S COUNCIL OF ECONOMIC ADVISERS

IT does not seem necessary to say much about the promise in the American business picture. It has been heralded widely both in private business circles and in government. As to basic and long-run conditions there is no question. We all know we have unparallelled natural riches, a great accumulation of financial resources and sound financial institutions for handling them, and an unmatched labor force. We were not devastated by the war, but, through it, accumulated abundant liquid assets and improved our industrial know-how and the training of our workers. The nation's technological capacities are unquestioned and give great promise for the future.

Prosperity through '50 and '51

In the short-run picture, the forecasters at the beginning of the year saw great promise for the first quarter or the first half. Actual developments have fully come up to that promise, and now there seems to be growing confidence that prosperity will last through '50 and into '51. Some are confident that it will go on indefinitely with only minor periods of hesitation. It seems to be a trait of human nature that the longer fair weather lasts, the more sure some people become that "it ain't gonna rain no more."

It should be clear, however, that in our postwar prosperity we have to a considerable extent been travelling on the momentum of wartime developments, both the accumulation of liquid spending power and a backlog of postponed demands. The prudent man will ask whether we may not get caught up on demand at current prices or whether the forces that support spending power may have become impaired.

The spending of the mass of the people is still maintained at a very high level by reasonably full employment and high rates of pay. That was a striking feature also of the mild recession of 1949. The question is whether we have struck a balance in our economic life on which we can maintain the market at full volume, present costs, and necessary rates of profit.

I have put the word "threat" in my title because I think it is unwise to go dashing down the road with unbounded confidence just because immediate and superficial indications look rosy. I think businessmen and the public at large should not take continued prosperity for granted but look carefully at the factors supporting the booming conditions of today to see whether we can count on them to continue.

The threats to continued prosperity

As I see it, a threat to the continuance of prosperity might come from either of two sources: (1) disorganization of the private market through badly adjusted price and income relations, and (2) disorganization of our public fiscal and monetary relations through bad taxing and spending policies.

On the private side, we know that the market has been supported by the special stimulus of nearly 3 billion dollars of G.I. refunds, by a tremendous housing boom, an unprecedented rate of automobile production, with its stimulus to the steel and other industries, and a great spurt in sales of television sets. These demands, taken with government stockpiling, subsidized exports, and military spending have created spot shortages in a number of markets; conversion deals have reappeared in steel; prices of lumber and non-ferrous metals have skyrocketed. There is complaint about quality, and there are even hints of gray markets.

Taking these and related factors together, it seems clear that a showdown of real market competition is just ahead, with rising costs and consumer resistance putting the squeeze on both producers and distributors in many lines. If they can't take it, they will begin to curtail operations, unemployment will rise, and market demand will be further impaired. The long-postponed postwar recession would be here.

The one thing which is deferring that showdown is the process of deficit spending which began about the time of the recession in the spring of 1949 but has continued since, even when prosperity took on the dimensions of a boom. This gives our present prosperity some unhealthy characteristics of a fever rather than the glow of economic health.

Some people argue that a little inflationary stimulus is a good thing, that it simply raises the general price level, makes it easier to carry our gigantic national debt and permits wages and profits to rise. This is all very well if the size of defiicits can be controlled and inflationary fires kept from getting out of hand. But the continuance of the cold war, the pressures on Congress for domestic expenditures and for tax reduction make it by no means sure that we are smart enough to have such self-control that we can carry out a proc-

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A study of effects of decolorizing agents on a titania opacified enamel

by Charles K. Russell

A THEORY has recently been advanced concerning the effect of various minor additions on the color and electrical properties of rutile.[1] It was found that the bluish color of rutile can result from the presence of cations having a valency greater than four. The principal action of these high charge cations is in effect to reduce the tetravalent titanium ion to a Ti^{3+} ion which produces a bluish cast when installed in the TiO_2 crystal network.

The purpose of the investigation is neither to confirm nor deny the correctness of this theory but merely to present the results obtained from the use of some of the minor additions suggested.[1] Several other compounds, which are commonly used as decolorizers in glass, were also studied.

Fundamental considerations

An important consideration in determining the value of a porcelain enamel is its esthetic properties. Appearance, to a great extent, is determined by the reflectance and color of the enamel surface. Titania enamels, as a group, have exhibited erratic color and reflectance stability. Because of this factor, an investigation of the effect of eleven minor additions was made; and the modifications in color, reflectance, and stability of the enamels were noted.

Procedure

A white commercial porcelain enamel was used as the basis for the determination. Twelve batches of this frit were used; each batch contained 5% clay, 0.25% $NaNO_2$, and 45% water as mill additions. In addition, 0.1% of one decolorizing agent was added as a mill addition to each batch. Altogether, eleven different additions were made — the twelfth batch being the base enamel. The compounds used as decolorizers are as follows:

C. K. RUSSELL

The author of the accompanying paper is a Junior in the Department of Ceramic Engineering at the University of Illinois. His paper won third place in the Ferro Contest for the best papers dealing with porcelain enameling technology.

Compound	Form On Which Additions Were Based
MnO_2	MnO_2
CoO	CoO
Sb_2O_3	Sb_2O_3
Se (metal)	Se
CeO_2	CeO_2
K_2TaF_7	Ta_2O_5
$CbOF_5$	Cb_2O_5
Na_2MoO_4	MoO_3
$SnCl_2$-AuCl	$SnCl_2$-AuCl
As_2O_5	As_2O_5
H_2WO_4	WO_3

The fineness test[2] gave values of from 0 to 1 gram of residue on a 200 mesh screen for a 100 gram sample.

Nine 4″ x 6″ groundcoated plates were sprayed with each test enamel. The enamels were applied at 30 grams per square foot. Three of the plates from each series were fired at 1500° F., one plate for three minutes, one for four minutes, and the third for five minutes. This firing procedure was repeated at 1525°F. and 1550°F. The purpose of the firing range was to determine the color and reflectance stability of each enamel.

The spectrophotometric characteristics of each enamel were determined by a recording spectrophotometer.

Statement of results

In the following analysis, it will be assumed that a blue-white enamel represents the best color condition with a cream-white enamel representing the worst. This assumption was used as a basis for a comparison of the various enamels. Also, the range of variation of reflectance for all enamels was taken at a wavelength of 525 millimicrons (the wavelength of the green filter used in making reflectance measurements).

The numbers on the curves refer to the firing temperature and time.

(1) Base Enamel Series—The data for this series are shown in Fig. 1.

The principal reflected wavelength of the base enamel ranged from 620 millimicrons at the lowest temperature and shortest firing time to 680 millimicrons at the higher times and temperatures. This range and the general slopes of the curves indicate that the base used was a cream-white enamel. This was verified by a visual comparison of the base enamel with a pure white surface.

The base enamel showed fair reflectance stability over the entire fir-

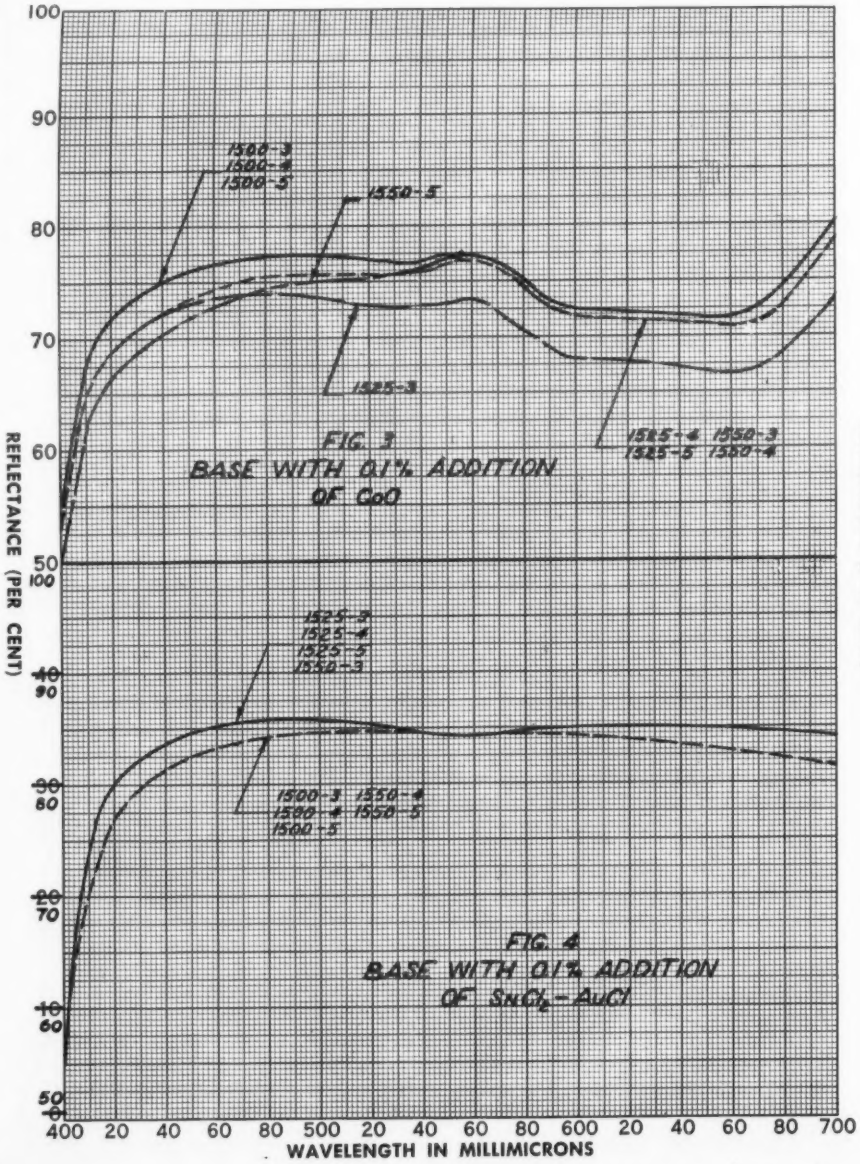


FIG. 3
BASE WITH 0.1% ADDITION OF CoO

FIG. 4
BASE WITH 0.1% ADDITION OF $SnCl_2$ – AuCl

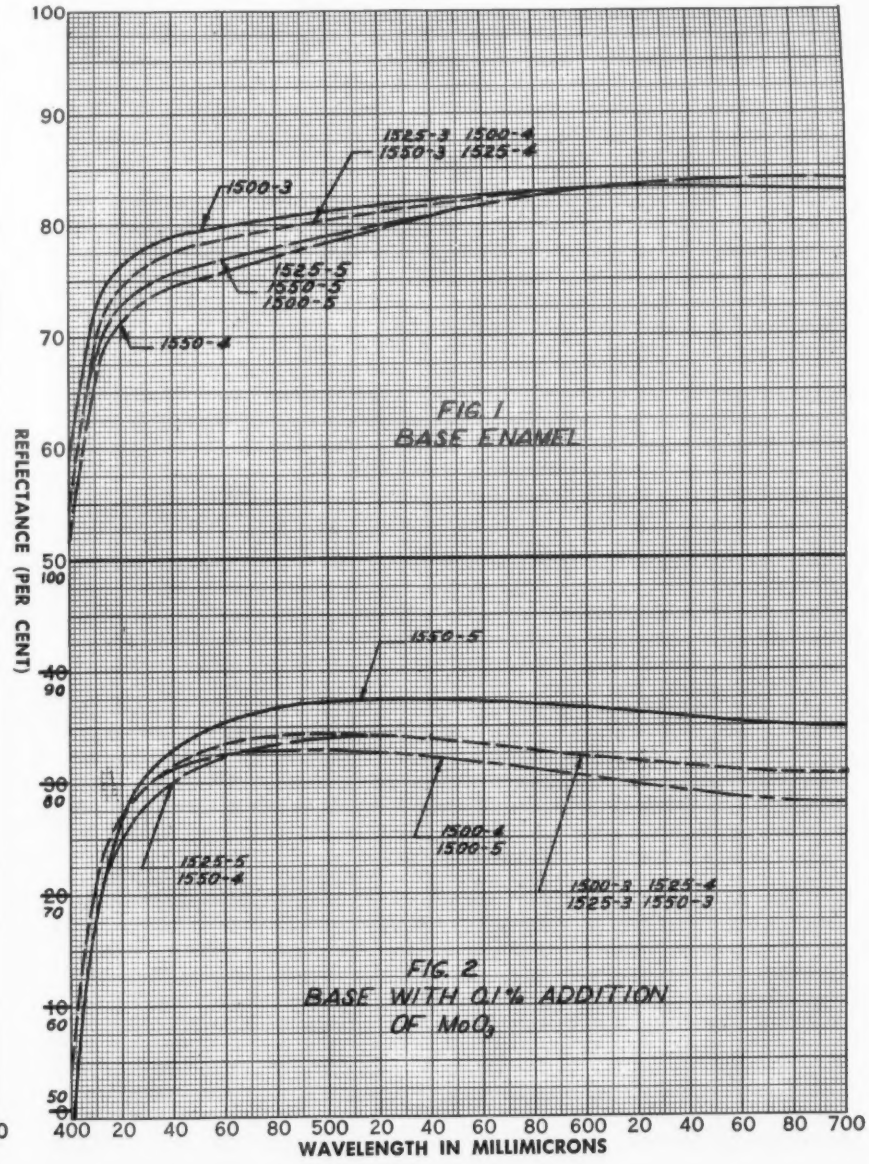
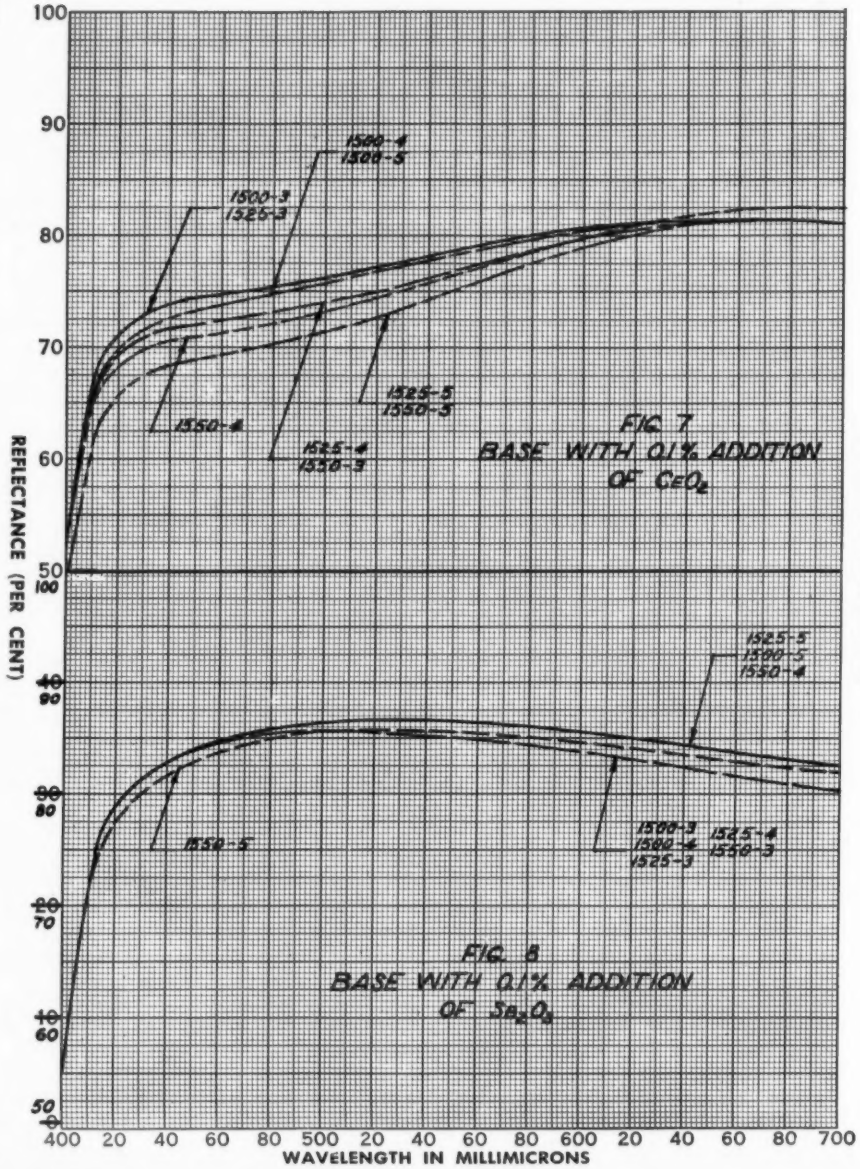
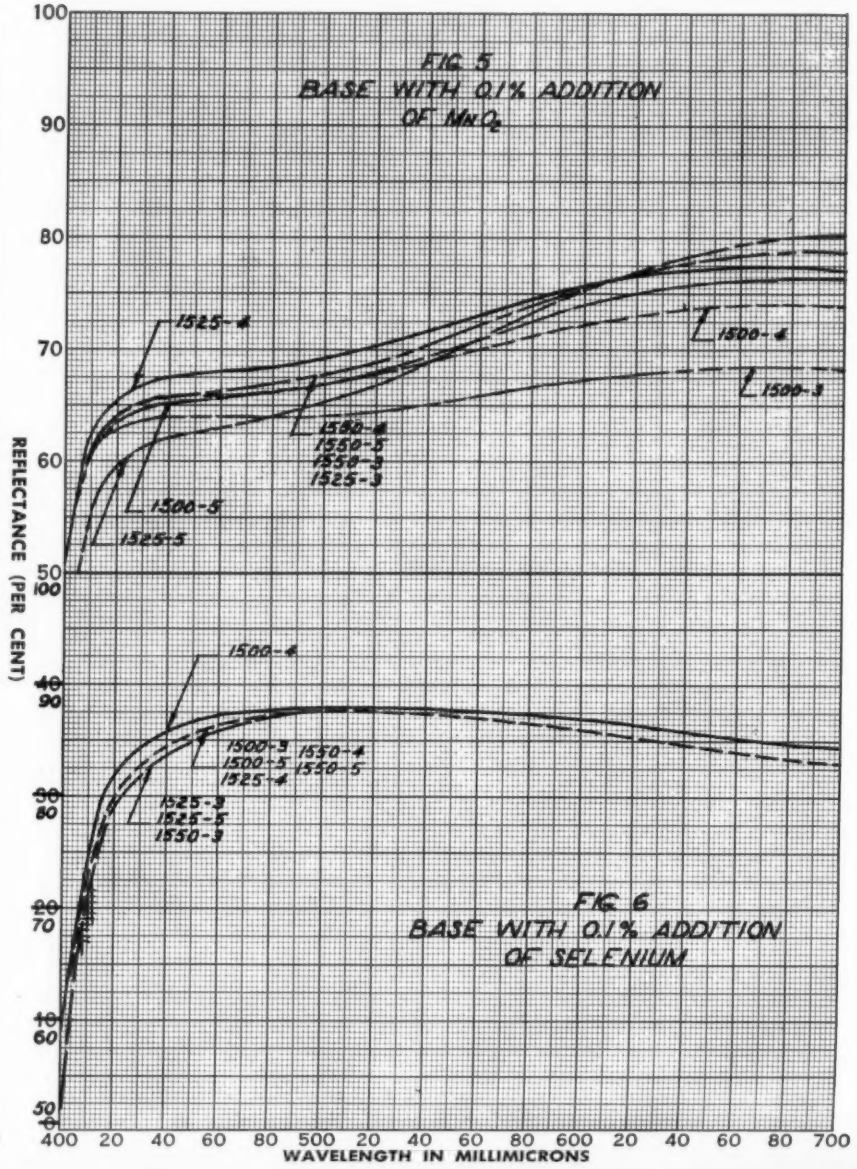


FIG. 1
BASE ENAMEL

FIG. 2
BASE WITH 0.1% ADDITION OF MoO_3


REFLECTANCE (PER CENT)
100
90
80
70
60
50
1500-4
1500-5
1500-3
1525-3
1550-4
1525-5
1550-3
1525-4
1550-3
FIG. 7
BASE WITH 0.1% ADDITION
OF CeO_2
100
90
80
70
60
50
1525-5
1500-5
1550-4
1550-5
1500-3
1500-4
1525-4
1525-3
1550-3
FIG. 8
BASE WITH 0.1% ADDITION
OF Sb_2O_3
400 20 40 60 80 500 20 40 60 80 600 20 40 60 80 700
WAVELENGTH IN MILLIMICRONS


REFLECTANCE (PER CENT)
100
90
80
70
60
50
FIG. 5
BASE WITH 0.1% ADDITION
OF MnO_2
1525-4
1500-4
1500-3
1550-4
1550-5
1550-3
1525-3
1500-5
1525-5
100
90
80
70
60
50
1500-4
1500-3
1550-4
1500-5
1550-5
1525-4
1525-3
1525-5
1550-3
FIG. 6
BASE WITH 0.1% ADDITION
OF SELENIUM
400 20 40 60 80 500 20 40 60 80 600 20 40 60 80 700
WAVELENGTH IN MILLIMICRONS

ing range; the variance was about 2 per cent.

(2) Molybdenum oxide series — Data for this series are shown in Fig. 2.

The action of a MoO_3 addition on the base enamel was somewhat similar to that of Ta_2O_5 and Cb_2O_5. The curves had a long gentle slope with a peak wavelength between 500 and 520 millimicrons; this is at the lower end of the green color range. The narrow range for this peak and the almost parallel slopes of the curves indicate that the enamel had good color stability over the entire firing range.

There was a considerable improvement in the principal reflected color of the base enamel; however, the reflectance varied about 5 per cent.

(3) Cobalt oxide series—Data for this series are shown in Fig. 3.

The spectrophotometer curves for the cobalt oxide series indicate that the addition of this compound did not have a desirable effect upon the base enamel. All of the curves were characterized by a peak at 560 millimicrons wavelength and by an extremely rapid rise in reflectance between 670 and 700 millimicrons. The curves also indicate that there was a fairly high reflectance at 490 millimicrons wavelength. The per cent reflectance of the base enamel was lowered though the enamel had fair color and reflectance stability. The reflectance variance was about 4 per cent.

(4) Stannous chloride-gold chloride series — Curves for this series appear in Fig. 4.

The addition of $SnCl_2$-AuCl, like the Sb_2O_3 addition, increased the color and reflectance stability of the base enamel. No particular wavelength was predominant in the reflected light, as indicated by the very gradual slope of the curves. The variance in reflection was under 1 per cent for the entire firing range.

One characteristic which occurred in all tests was the slight depression in the curve at a wavelength of 560 millimicrons. Other than this, the per cent reflectance of the various wavelengths was almost uniform.

The stannous chloride-gold chloride addition did improve the reflected color of the base enamel, changing it from a cream-white to an almost pure white.

(5) Manganese dioxide series—Data for this series are shown in Fig. 5.

It was obvious from a visual analysis of the fired enamel containing MnO_2 that it had an undesirable effect upon the base enamel. Maximum reflectance was decreased, and the color was a very definite pink. The enamel containing MnO_2 addition was also characterized by very poor color stability. The reflectance variance for the firing range was about 6 per cent which also indicates poor color stability.

Editor's Note:

Unquestionably, one of the most important subjects in the minds of enamelers is the problem of "color" in cover coat enamels. It has been the cause of many headaches among the practical enamelers and a problem for much concentrated research and development by technicians of the frit and color producers. We are pleased to present this worthwhile addition to the literature on the subject.

It is anticipated that at some time in the future the question of what is "good" color for white enamels will come up for debate, both in plant circles and in sales departments. On the basis of current practice and acceptance, Mr. Russell's assumption that a blue-white enamel represents the best color condition seems entirely reasonable.

(6) Selenium metal series—Data for this series are shown in Fig. 6.

Selenium metal had one of the most desirable effects on the base enamel. As shown by the curves, the enamel with Se addition had excellent color and reflectance stability, with the principal wavelength for all curves falling at 510 millimicrons; this represents a color at the lower end of the green color range. With the time and temperature range used, there was a variance of only 0.5 per cent for the reflectance.

When compared to the curves for the base enamel, it becomes apparent that the color of the enamel was extensively improved.

(7) Ceric oxide series—Data for this series are shown in Figure 7.

Ceric oxide, like MnO_2 and CoO, had little to offer as a decolorizing agent. The maximum per cent reflectance of the base enamel was decreased, and a pink tinge was visibly noticeable. The enamel had a variance in reflectance of 4.5 per cent.

(8) Antimony oxide series—Data for this series appears in Fig. 8.

The addition of Sb_2O_3 to the base enamel greatly increased the color and reflectance stability of the base enamel. The highest firing temperature and time, representing the "worst" condition, had a variance of only 1.5 per cent from the "best" condition. All color peaks fell at about 530 millimicrons wavelength; this fact, along with the almost parallel slopes of the curves, indicates that the addition of antimony oxide gave the enamel excellent color stability. The principal reflected color created by the Sb_2O_3 addition was green.

(9) Columbium oxide series—The curves for this series are shown in Fig. 9.

The principal reflected wavelength for this series varied from 500 to 540 millimicrons. The addition of Cb_2O_5 did not decrease the color variations of the base enamel to any degree. However, the range of variation, 500 to 540 millimicrons, changed the cream-white base to a greenish-white.

There was little order to the variance of reflectance with time and temperature. The two extreme firing conditions, represented by the highest and lowest curves, show that there was a difference of about 4.5 per cent in reflectance.

(10) Tungstic oxide series — Data for this series are found in Fig. 10.

The addition of WO_3 to the base enamel produced a very favorable modification. The principal reflected wavelength was within 480-500 millimicrons for the entire firing cycle, placing it within the blue color range. This short range indicates that WO_3 gave the base good color stability. It also definitely improved the reflectance stability of the base enamel; the variance in reflectance was less than 2.0 per cent. In addition, the re-

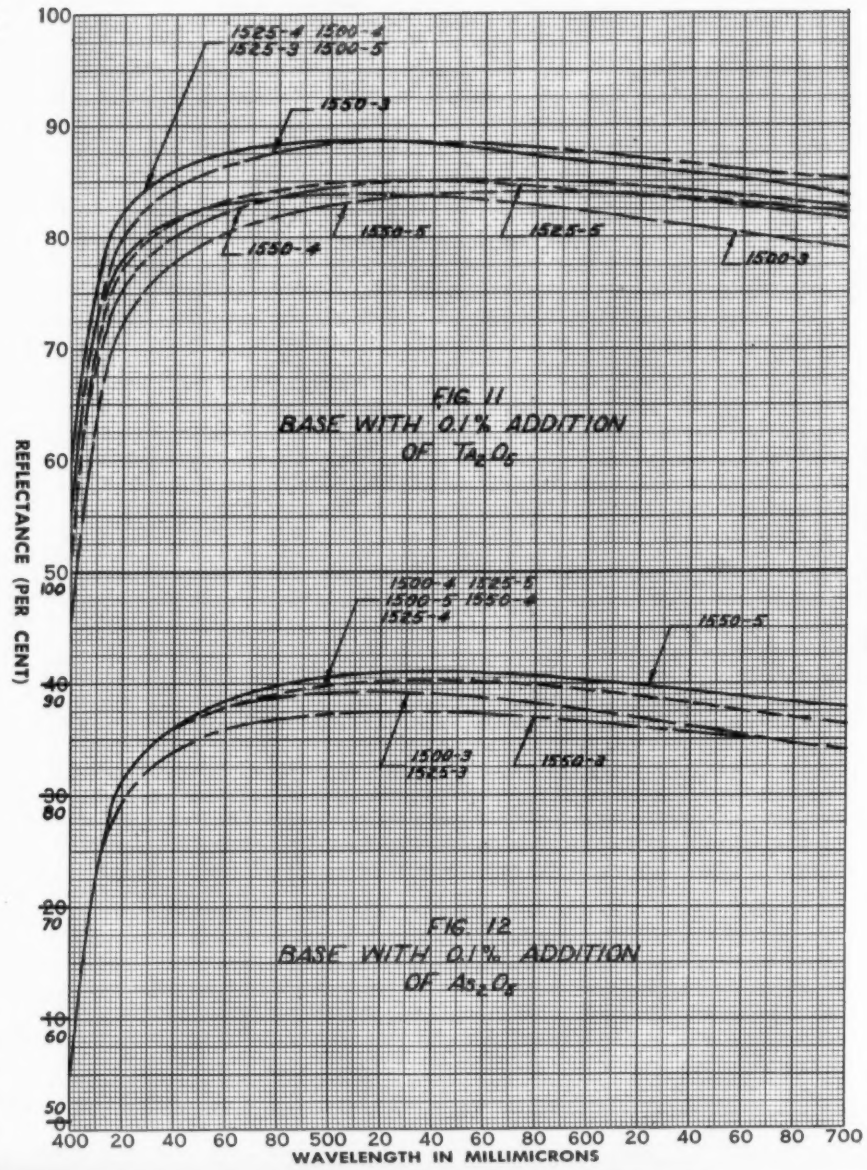


FIG. 11
BASE WITH 0.1% ADDITION
OF Ta_2O_5

FIG. 12
BASE WITH 0.1% ADDITION
OF As_2O_5

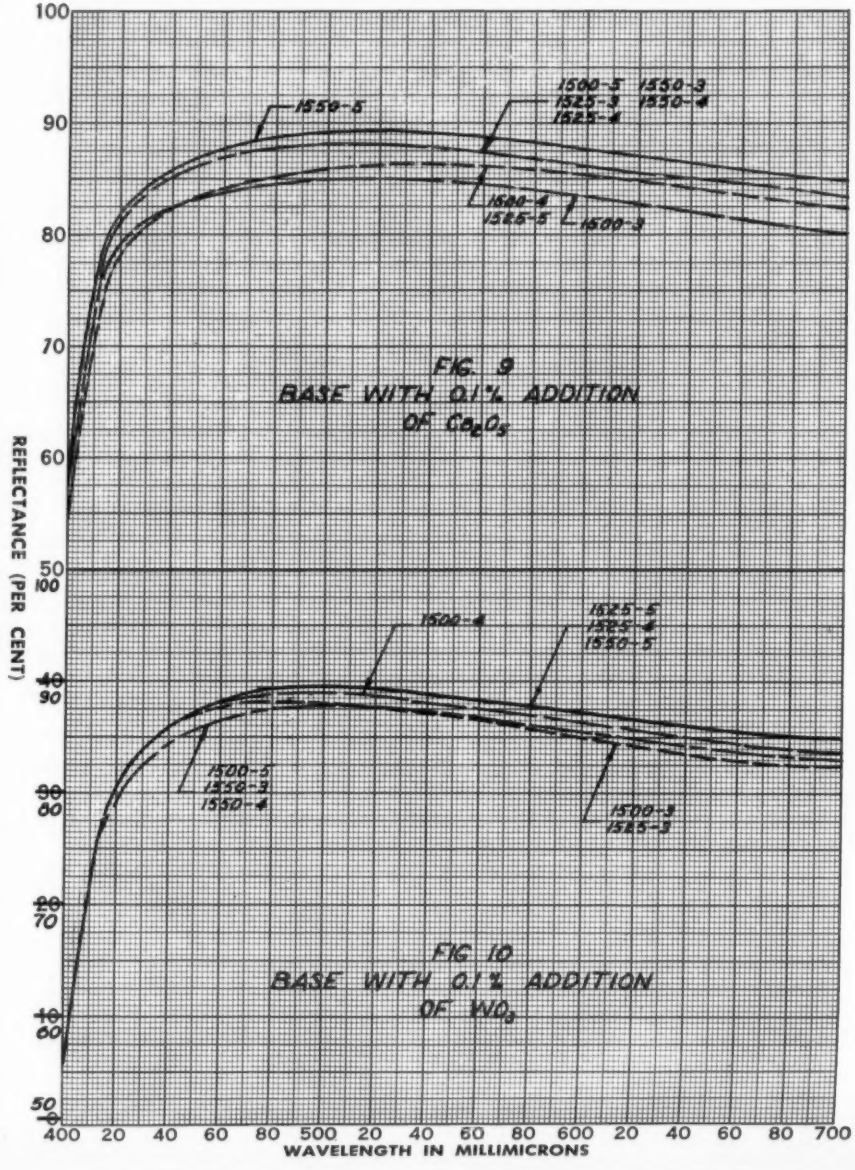


FIG. 9
BASE WITH 0.1% ADDITION
OF Ce_2O_3

FIG. 10
BASE WITH 0.1% ADDITION
OF WO_3

flectance of the base enamel was improved to some extent.

(11) Tantalum oxide series—Data for this series are found in Fig. 11.

As was to be expected, the tantalum and columbium oxide additions gave somewhat similar results in their effect on color and reflectance. However, Ta_2O_5 proved to be the least effective of the two. Its principal reflected wavelength varied considerably with time and temperature, although the degree of difference between the highest and lowest points on any one curve was not great. The worst condition as far as reflected color was concerned was reached at 1550-5, where the enamel had a very slight pinkish tinge; and the best color state occurred at 1500-3, where the enamel was more of a bluish-white. The wide range of color indicates that the tantalum oxide series had poor color stability.

An analysis of the per cent reflectance shows that there was a variance of about 5 per cent for the entire firing range. This fact indicates that Ta_2O_5 did little for reflectance stability.

(12) Arsenic oxide series—Data for this series is found in Fig. 12.

The outstanding feature of the As_2O_5 addition was the very high reflectance which it imparted to the enamel. At the firing temperature and time of 1550-5, the enamel had a maximum peak of 91 per cent reflectance. The variation in reflectance over the firing range was about 3.5 per cent.

The color peak in this series was practically uniform at 530 millimicrons wavelength, placing the principal reflected light in the green range.

The addition of As_2O_5 to the base enamel improved both its color and reflectance; the only disadvantage was the variance of reflectance with time and temperature.

Conclusions and analysis of data

A comparison of the base enamel and base enamel plus additions can be found in Fig. 13. All curves were taken from plates which had been fired at 1550° F. for five minutes.

Five properties are important in determining the value of the decolorizing agent in an enamel. These are as follows: principal reflected wavelength, per cent reflectance, color stability, reflectance stability, and irregularities in reflected color.

Of the eleven compounds tested, three can be discounted as having little or no value as decolorizing agents. These three are cobalt oxide, ceric oxide, and manganese dioxide. Ceric oxide and manganese dioxide increased the pinkish cast of the enamel and decreased the per cent reflectance; cobalt oxide decreased the per cent reflectance and had several irregularities in its spectrophotometer curves.

Two of the decolorizing agents, Ta_2O_5 and MoO_3, increased the reflectance and gave a blue to green cast to the base enamel but had low color and reflectance stability.

The As_2O_5 and Cb_2O_5 additions improved the reflectance of the enamel

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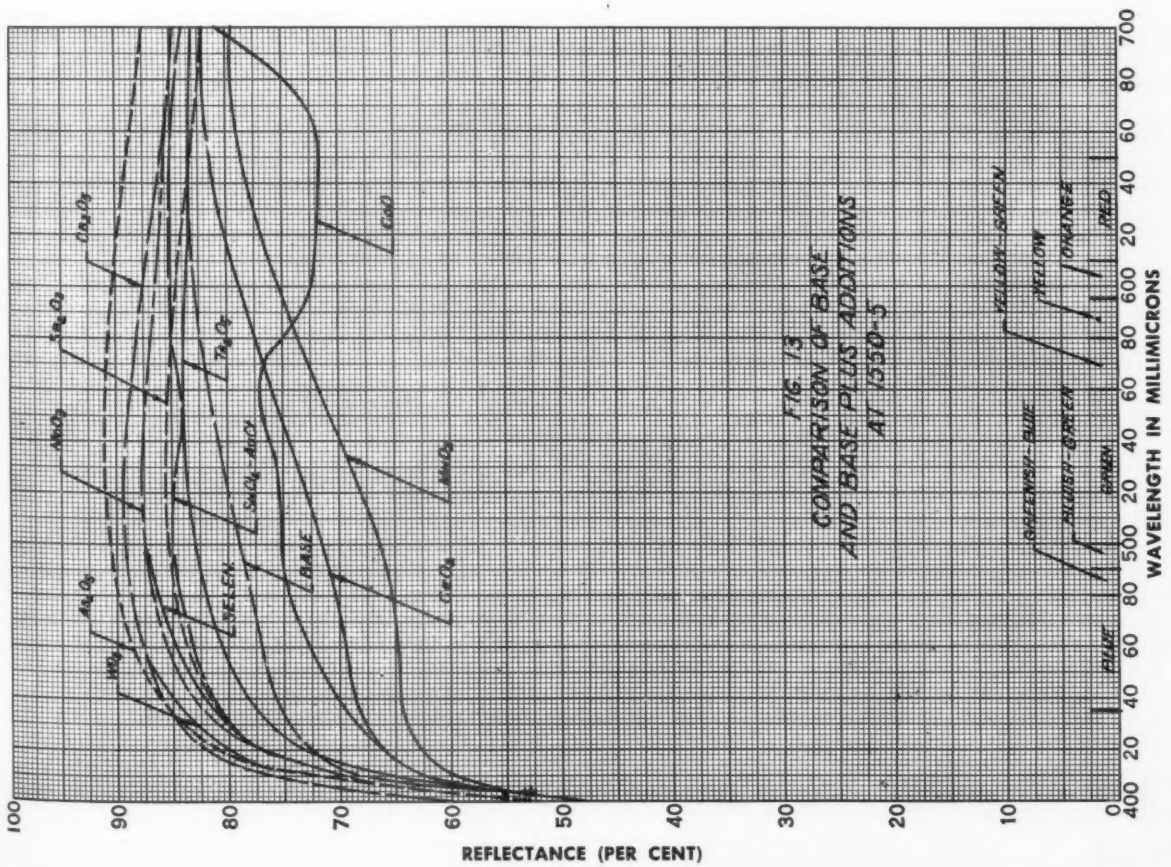
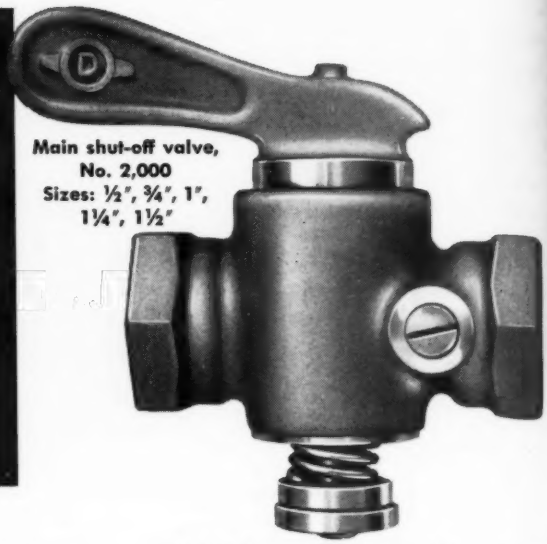


FIG. 13
COMPARISON OF BASE AND BASE PLUS ADDITIONS AT 1550-5

VALVES

For The GAS HEATING INDUSTRY



Main shut-off valve,
No. 2,000
Sizes: ½", ¾", 1",
1¼", 1½"

For . . . Furnaces . . . Conversion Burners . . . All Heating Equipment

Pilot valve, No. 1920
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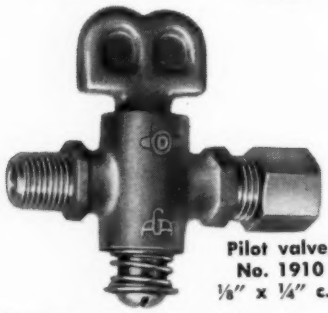

Pilot valve,
No. 1910
⅛" x ¼" c.c.

These are only two of the complete line of pilot valves currently being supplied to the industry.

Continued expansion of the Gas Heating Industry will be dependent in part on the maintenance of the present high level of customer satisfaction. That's where valves come in—valves that can be depended upon to withstand torque and abuse—valves that won't talk back to you through customer complaints—valves designed to assure satisfaction for the life of the equipment.

These are some of the advantages gained when "Detroit Brass" valves are specified. Detroit Brass valves are produced from highest quality brass, strongly constructed and A. G. A. approved. Produced by a pioneer company in the gas valve field, they bring to the user the advantage of long experience in research, engineering and field testing. They spell satisfaction to you and your customers.

Gas Appliance Fittings produced by Detroit Brass & Malleable Works include a complete line of valves for ranges, water heaters, space heaters, furnaces and all other types of gas equipment.

GAS VALVE DIVISION

DETROIT BRASS & MALLEABLE WORKS

DETROIT 9, MICHIGAN

Gas appliance manufacturers meet at White Sulphur Springs

PROSPECTS for the coming year in the gas appliance and equipment manufacturing field were discussed by national leaders of the industry at a three-day session at The Greenbrier Hotel, White Sulphur Springs, West Virginia, on May 28, 29 and 30. The occasion was the 15th annual meeting of the Gas Appliance Manufacturers Association.

Industry in healthy condition

Stanley H. Hobson, president of the Association, pointed out in his annual report the current healthy state of the industry and emphasized the need for industry and association expansion of sales effort, promotion, advertising and public relations, particularly at point-of-sale levels.

Hobson, who is also president of Geo. D. Roper Corp., emphasized that national advertising by the gas industry needs support at the local level by distributors, dealers and other outlets to insure full potency of the Association program.

"Without a complete tie-in of brand name advertising at the local level, through gas utilities and dealers alike, we lose the real genuine wallop that national advertising should create."

Stressing "a serious lack of local advertising on brand name" appliances and equipment, Hobson urged that the problem be given more attention by the Association, its members and outlets in order to impress the ultimate consumer, the present and future users of gas. He also urged a more aggressive publicity program and Association support of the current national promotional program of the Liquefied Petroleum Gas Association.

LP-gas market expansion

Plans already inaugurated and contemplated to win the rural, small town, and suburban markets beyond the city gas mains for liquefied petroleum gas were revealed by Lee A. Brand, vice president of Empire Stove Co., and chairman of the National Committee for LP Gas Promotion.

Discussing the "battle of the fuels" before the Association membership, Brand said that the LP-gas industry is determined to consolidate and expand gains made during and after the war. The intensive promotion program "represents the biggest single job ever tackled by the LP-gas industry."

A chief purpose of the program, stated the speaker, was to expand markets for the use of LP-gas, appliances and equipment. "To accomplish this, we recognize the need to aid the individual dealer by training his salesmen and service men. Such aid is considered important to the over-all program and will be given.

"It is the intent of the National Committee to inaugurate an advertising and promotional program which will reach all prospect levels with emphasis being placed on appropriate activities at the local level. Of course, local level activities are always strengthened by national activities, and we expect to do enough national advertising to lend adequate support to this phase of the program. The program is designed to reach groups at the local, state, and national level. A certain percentage of the funds collected will be set aside for employee training at the local level.

"The advantages of bottled gas off

the city gas mains for cooking, refrigeration, and heating purposes will be stressed in advertising. Other commercial and agricultural uses of LP-gas will be stressed. An educational campaign for home economists, county agents and farm leaders is also planned," concluded Brand.

Business can use the census

Philip M. Hauser, past acting director of the Bureau of Census, and an associate dean at the University of Chicago, presented some information of vital interest to GAMA members in his talk on "Business Can Use the Census."

"The Bureau of the Census is at the present in various stages of completing five major census enterprises which will add up to the largest post-war mass of statistics available to American business for marketing purposes. These include the 1947 Census of Manufacturers, the 1948 Census of Business and the 1950 Censuses of Population, Housing and Agriculture. They will provide business with a measurement of the changes which have occurred since 1940 among the nation's 240,000 manufacturing establishments, 2,600,000 wholesale, retail and service establishments, 6,000,000 farms, 45,000,000 dwelling units, and over 150,000,000 people," stated Hauser.

Addressing the 15th annual meeting of GAMA, Wilson W. Wyatt told more than four hundred members and guests about "Business, Housing and Taxes." Mr. Wyatt is general counsel of National Committee for the Repeal of Wartime Excise Taxes.

"The 1950 Censuses of Population and Housing will provide direct measurements of a number of items of special interest to GAMA," the speaker pointed out. "Statistics will be available from the Housing Census on occupied dwelling units classified separately by cooking fuel, and by heating fuel, used most. Moreover, for the first time in the Census, a distinction will be made between utility gas and bottled gas. Linked with the heating fuel data will be information on heating equipment used. Also there will be reported the number of units with only cold piped

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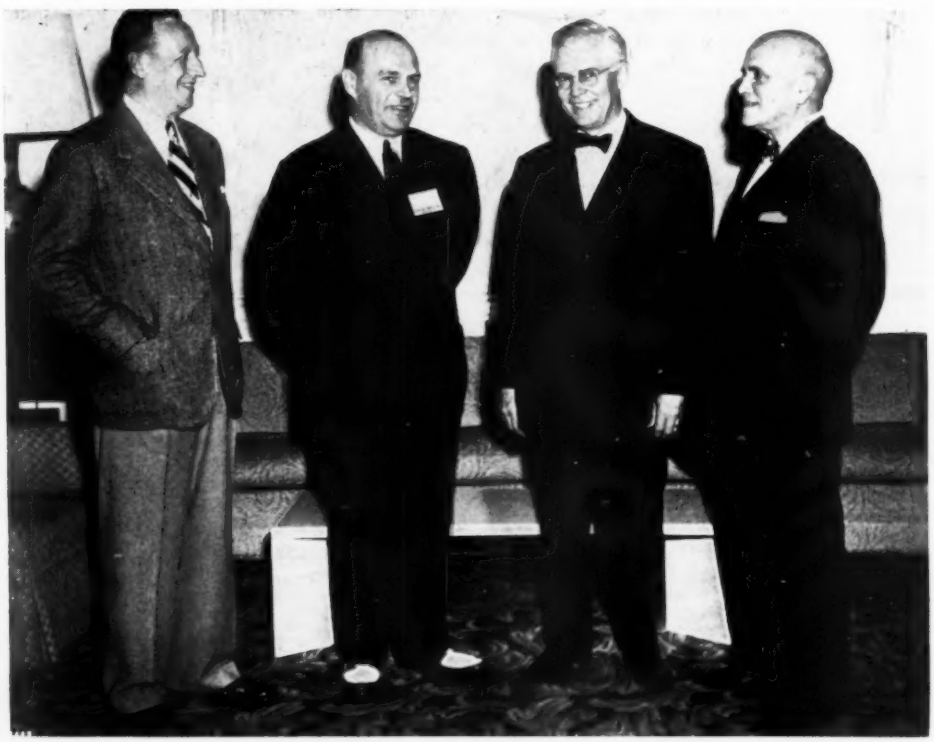

Three newly elected GAMA officers are shown with Stanley H. Hobson, Association president. The new officers are (left to right) A. B. Ritzenthaler, The Tappan Stove Co., 2nd vice president of GAMA; Frederic O. Hess, Selas Corporation of America, newly elected president; Mr. Hobson; and Louis Ruthenburg, Servel, Inc., 1st vice president. The new officers will take office in October.

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Always....

Photo of a Mt. Vernon Furnace & Mfg. Co. range with PERMA-VIEW window. This is one of the growing number of regular users of the "visible baking" feature.

Yes sir, it's as simple as that. The PERMA-VIEW oven door window comes to you ready for immediate installation in your range—to add a sales feature second to none, as the demand grows for "visible baking."

The strong steel encased, double pane PERMA-VIEW window incorporates the finest quality heat resisting glass. It is mechanically sealed to prevent infiltration of vapors and to eliminate "fogging."

More and more range manufacturers are turning to PERMA-VIEW as a practical, economical and effective sales feature for their new models. We will gladly work with your engineering department in adapting its use to *your* new range. Write for complete information.

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TINNERMAN

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Tops FOR DESK TOP ASSEMBLY

says GENERAL FIREPROOFING

World-Renowned Manufacturer of Metal Business Furniture

Tests prove that SPEED NUTS produce an assembly savings of 40% over other fastening methods.* That's the report supplied by General Fireproofing engineers after analyzing various methods of attaching Mode-Maker* desk tops to pedestals.

For faster, easier, vibration-proof attachments, SPEED NUTS were proved definitely superior. On the basis of these recent tests, GF plans to increase their use of SPEED NUTS to millions more per year.

Join the thousands of manufacturers who are converting costs to profits by specifying SPEED NUT brand fasteners. A thorough Tinnerman Fastening Analysis is the first step. Ask your Tinnerman representative for details.

Write for your copy of the "Savings Stories" booklet of actual case histories. TINNERMAN PRODUCTS, INC., Cleveland, Ohio. In Canada: Dominion Fasteners Ltd., Hamilton. In England: Simmonds Aerocessories, Ltd., Treforest, Wales.

*T. M. Reg. U. S. Pat. Off.

New GF Mode-Maker Desk
Flat Type SPEED NUTS attach desk to pedestal. Reaching inside pedestal, assembler uses finger pressure to position and hold SPEED NUT, then drives screw with power screwdriver. Provides speedy, vibration-proof attachment.
Self-retaining "U" Type SPEED NUTS secure dust hood to desk top (see diagram).
TINNERMAN Speed Nuts

Eighteenth annual meeting of cooking and heating appliance manufacturers

OFFICIAL registration at the 18th annual convention and exhibit of the Institute of Cooking and Heating Appliance Manufacturers was approximately 530 persons, although total attendance was considerably larger at what was termed one of the most successful meetings in the history of ICHAM. There were more exhibitors, excellent attendance at general session meetings, and strong interest among the manufacturers of cooking and heating appliances.

Held at the Netherland Plaza Hotel, Cincinnati, June 5-7, the meeting represented a transfer of the "big" meeting and exhibit of products, materials and components from the winter meeting to the summer meeting.

Sam Dunckel, managing director of ICHAM, Pauline Dunckel, and other members of the Institute staff are to be congratulated on the outstanding job that is being done in keeping the cooperative organization meetings on the high business and social plane that has won comment in the past. ICHAM is unquestionably one of the outstanding examples of successful industry cooperation on a national scale.

ICHAM Officers

President: A. B. Ritzenthaler, The Tappan Stove Co., Mansfield, Ohio

Executive vice president: Walter F. Muhlbach, Florence Stove Company, Gardner, Massachusetts

Secretary-treasurer: F. D. Hart, Temco, Inc., Nashville, Tennessee

Vice president, meetings: John A. Drake, Norge Division, Borg-Warner Corp., Detroit, Michigan

Vice president, publications: F. H. Guthrie, Newark Stove Company, Newark, Ohio

Vice president, memberships, Cecil M. Dunn, Estate Heatrola Division, Noma Electric Corp., Hamilton, O.

The chairman of ICHAM's outstanding mid-year convention this year was John A. Drake, director of market research, Norge Division, Borg-Warner Corporation.

A. B. Ritzenthaler, of The Tappan Stove Company, and Institute president, presided at the general session on Tuesday morning at which time he presented the "president's annual report."

Prosperity through '50 and '51

Edwin G. Nourse, former chairman of the President's Council of Economic Advisers, was the first guest speaker at the general session. His topic was "Promise and Threat in Current American Business."

"In the short-run picture," pointed out Nourse, "the forecasters at the beginning of the year saw great promise for the first quarter or the first half. Actual developments have fully come up to that promise, and now there seems to be growing confidence that prosperity will last through '50 and into '51."

America stands as monument to generations of salesmen

In his address, "The Case for the

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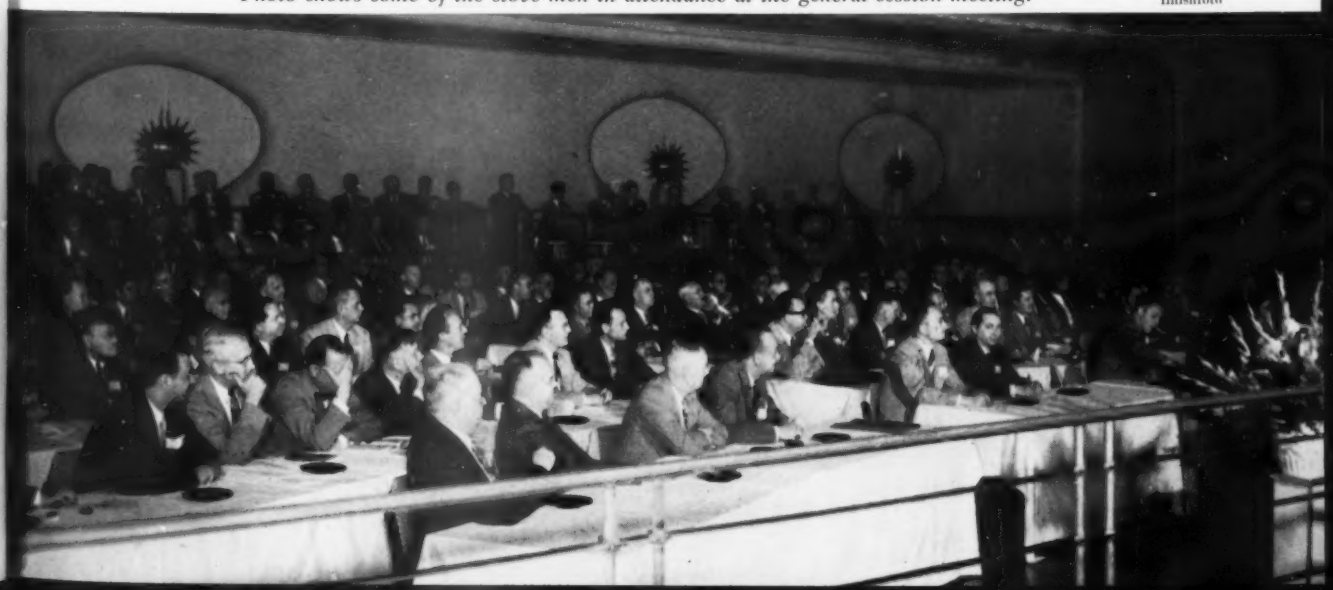
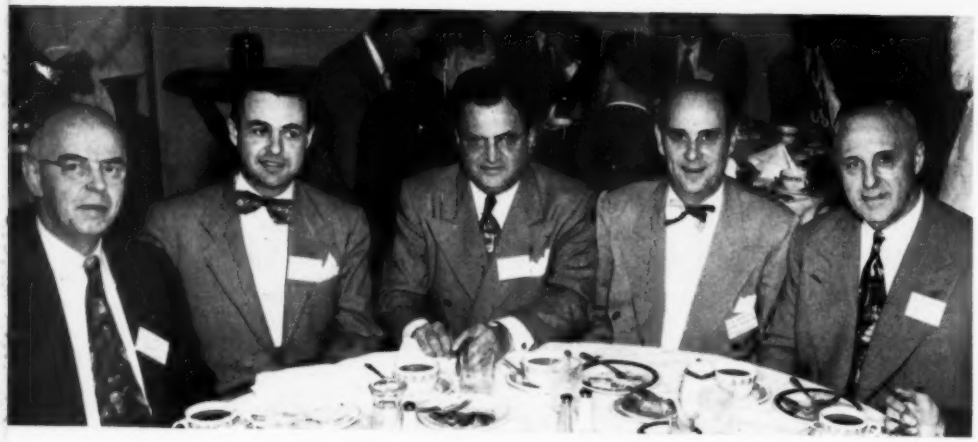
Convention Photos. . Pages 38 & 39

Photo shows some of the stove men in attendance at the general session meeting. finishfoto





Left to right: N. P. Norlie, Wilbur B. Driver Co.; Joe C. Atkins, Cutler-Hammer; M. J. Maier, Malleable Iron Range; B. H. Chamberlin, Cutler-Hammer; Sam Dunckel, ICHAM.

ICHAM

Walter Hasenzahl and Gordon P. Hentz, Estate Heatrola Division of Noma Electric; Felix Kahn, Home Products; George Smallwood, Oakland Foundry; W. H. Margenau, Armco Steel.

finishfotos

Clockwise: Tom Linson, Martin Stove; J. S. Grigg, Cameron Stove; Tom Glascock, Glascock Stove; Mrs. Grigg; B. J. Price, Birmingham Stove; R. J. Thomas, TC&I; J. W. Nall, Lamson & Sessions; Jennings Gordon, Southern Coop. (Gentlemen not facing camera are unidentified)

Hugh Reading, McQuay Norris; A. F. Craver, Patrol Valve; D. M. Smith, McQuay-Norris; R. B. Larkin, Patrol Valve; and W. C. Neumann, of Union Steel Products.

E. D. Curren, Kalamazoo Stove; Marvin Bower, general session speaker; Pauline Dunckel, of ICHAM; Edwin G. Nourse, general session speaker; and Henry H. Morse, ICHAM president emeritus.

PHOTOS

A. C. Anderson, New Monarch Machine & Stamping; W. E. Friend, Wrought Iron Range; H. L. Hetzler, Copper-Clad Malleable Range; Milburn Dick and John Brown, Wrought Iron.

finishfotos

Walter E. Pilson, Mt. Vernon Furnace & Mfg.; Tommy Thompson, Skelgas; W. G. Parzybok, Locke Stove; E. D. Davis, Southern Coal; and Edwin Esson, Locke Stove.

Mrs. Ellsworth Simms; A. F. Craver, Patrol Valve; Frank Henke and Philip Harper, Harper-Wyman; Mrs. Harper; E. W. Simms, Estate Heatrola Division of Noma Electric.

finish SUGGESTION BOX

Protection for machined parts and tools

PROTECTION for the cutting edge of critical machine tools during toolroom storage is provided at Northrop Aircraft, Inc., by dipping the tools in a hot plastic coating material just after use or sharpening and prior to returning the tools to the bin. This coating, a rubbery sheet-like substance when cold, prevents abrasion caused by rubbing or bumping the tools together, permits storage of many tools in a single bin, and effectively eliminates the danger of rusting or corrosion during storage. Once coated, a tool may be dropped on cement without injury to its cutting edge.

Above: Left, applied; right, removed. Plastic dip is heated and then parts to be protected are immersed in it, as at left. John Seymour, Northrop process engineer, right, demonstrates ease with which the plastic coating can be removed.

Left: Gil Close, finish *correspondent and widely-read Pacific Coast trade publication writer, demonstrates the ease with which a plastic "hot dip" protective coating can be removed from machined parts and tools.*

The material used is a plastic composition conforming to Army-Navy Specification AN-C-117. One such material, "Thermodip," is now available. The solid plastic is melted in a thermostatically controlled electric glue pot, and dipping temperatures range between 300 and 310 degrees F. The coating cools almost immediately to a thickness of approximately 1/16 inch. The entire operation requires but a fraction of a minute, and can be accomplished by the tool keeper just prior to putting the tool in its bin.

The coating does not adhere to the metal, and is easy to peel away when the tool is required for use. Though some discoloration may occur, the material can be used over and over again by saving that which is peeled from the tools and re-melting it. No special cleaning of tools prior to dipping is necessary. Wiping them off with a clean rag is sufficient.

Tools thus coated prior to return to the Northrop toolrooms include milling cutters, reamers, end mills, taps, large drills, etc. The process has proved very effective at this company in prolonging tool life and reducing the number of times each tool must be sharpened.

***Source for further information on this advantageous process may be obtained without obligation by writing* finish.**

WIREBOUND BOX ASSN. MOVES

The Wirebound Box Manufacturers Association has announced that their offices have been moved to 327 So. LaSalle Street, Chicago 4, Illinois. The offices were previously located at 105 So. LaSalle Street.

FRUSTRATIN'....AIN'T IT?

...BUT I JUST CAN'T SCRATCH A VITREO PORCELAIN ENAMEL FINISH!

Plan for the Lifetime Finish

Pffffft! For months I've been trying to get my talons into that nice new smooth table surface, and I'm telling you, they're as sharp as any Tabby's on the block! Guess I'd better stop trying or I won't have any protection against that darn fool terrier down the street.

Yep, the people I live with sure had cat sense when they insisted upon a VITREO Porcelain Enamel Finish. They knew that the only surface that would retain its useful, sleek beauty through years of tough use would be Porcelain Enamel. They knew that hot irons and skillets, a rough surface scraping across it, scalding liquids and burning grease; even my sharp claws would fail to harm it. And, they'll discover that their table and appliance tops won't yellow with age and will always be easy to keep clean.

Manufacturers—before you start production on a new product—ask Vitreous to show how practical and inexpensive a Porcelain Enamel Finish can be for you. I'd stake all my nine lives on Porcelain Enamel—the purrrrrfect surface!

VITREOUS STEEL PRODUCTS CO.

BOX 1791, CLEVELAND 5, OHIO *(Factory at Nappanee, Ind.)*

Summer homefurnishings market

THE 10-day Summer Homefurnishings Market which opened on June 19 in Chicago, just as this issue of *finish* was going to press, had indications of being one of the more successful summer shows.

Buyer registration for the first two days at the American Furniture Mart totaled 8325 and was running about 600 ahead of a year ago. Attendance at The Merchandise Mart on the opening day was reported as running about 2 to 5% ahead of last year. All indications pointed to a total attendance of around 21,000 before the end of the show.

Above: The new Altorfer Bros. automatic washer with "centric" agitator which permits a continuous washing action.

A check-up among exhibiting manufacturers disclosed keen buying interest, according to Lawrence H. Whiting, president, American Furniture Mart, who added that "the industry is in the soundest condition in its history."

Buying was described as "of the healthy type to take care of inventory requirements" rather than of the speculative variety.

Among the exhibitors

Altorfer Bros. showed their new automatic washer which employs a new technique in continuous washing, with action governed by a "centric" agitator, rubber washer pins and gearless automatic transmission.

Caloric had one of the most interesting exhibits at the market. They presented a demonstration which showed the relative heating speed and latent heat ratings of gas and electric ranges.

General Electric displayed a new refrigerator with a magnetic door which closes quietly because of the absence of a latch.

Perfection Stove exhibited its newly-purchased line of Acorn and

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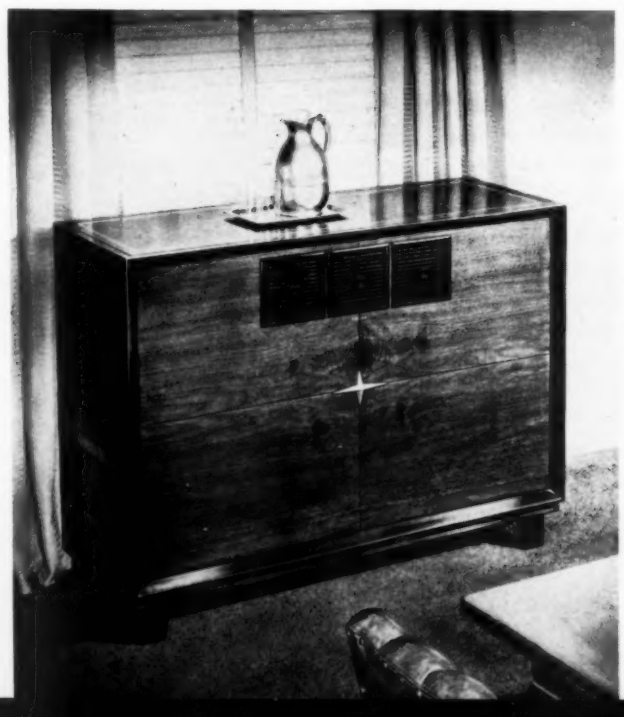
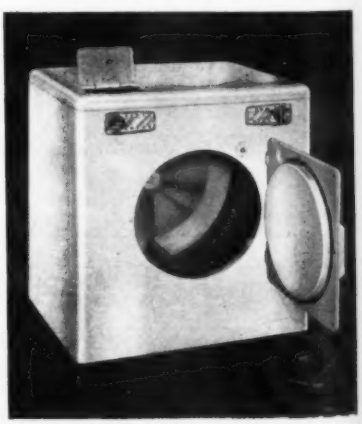


Left: Philco's new air conditioner for rooms up to 550 sq. ft. with ceiling of normal height. Walnut veneer cabinet with top finished in leather embellished with gold tooling.

Below: Temco's brand new automatic gas clothes dryer which utilizes a unique vacuum drying process.



Above: Monitor's new Prestomat washer is equipped with an Aerator pulsator which propels water and air together through the clothes.

Left: Norge's new gas range with an electric ignition system for lighting top burners as well as the oven.

Above: Admiral's Dual-Temp combination refrigerator and home freezer features a big moist-cold department, vapor sealed cooling coils, and requires no defrosting. Wendy Waldron finds answer to current heat wave.

Below: This attractive "dinette server" was shown for the first time by Palley Manufacturing which also exhibited its line of kitchen cabinets.

Below: Perfection Stove's entry into the gas heater field is adaptable to any gas, city or bottled. Any one of three models may be equipped with blower accessory to aid heat circulation.

All aboard the Quality Train! Climb on with *Hommel's* materials and you're guaranteed a pleasant and profitable journey . . . because Hommel Frits, Clays, and Oxides are *scientifically controlled* in our laboratories to satisfy your most rigid requirements . . . because OHCO products have successfully been used and re-used by 5000 consistent customers . . . we feel confident in making the claim, backed up by 59 years of quality - production, that Hommel's Frits, Clays, and Oxides will cut your costs and give unmatched quality in your finished products. Not a boast . . . but a proved fact!

So when our representative calls on you, bear in mind that he wants to show you how costs can be cut and finished quality improved.

Laboratory Controlled Production of Ceramic Supplies

THE O. HOMMEL CO.
PITTSBURGH 30, PA.
Pacific Coast Agents
L. H. BUTCHER CO.

- FRIT for Steel, Cast Iron or Pottery
- CERAMIC COLORS
- CHEMICALS
- BRONZE POWDERS
- METAL POWDERS
- SUPPLIES
- EQUIPMENT

Our Technical Staff and Samples are available to you without obligation. Let us help you with your problems.

World's Most Complete Ceramic Supplier

HOME LAUNDRY MFRS. TO MEET IN ATLANTIC CITY, JULY 12-14

The semi-annual meeting of the American Home Laundry Manufacturers Association will be held in Atlantic City, New Jersey, July 12, 13 and 14. Headquarters will be at Haddon Hall Hotel.

Registration will be held Wednesday morning, July 12. Following a mixed luncheon, the semi-annual meeting will be held. A dinner party has been scheduled for Wednesday evening.

Thursday will be given over to the Men's Golf Tournament at Seaview Country Club. There will also be golf for the ladies, it was announced. No organized plans have been made for Friday.

Registrations for the meeting and for the golf tournaments should be mailed immediately to American Home Laundry Manufacturers Association, 38 South Dearborn Street, Chicago 3, Illinois.

Hotel reservations should be mailed to Chalfonte-Haddon Hall, Leeds and Lippincott Company, Atlantic City, New Jersey.

LOCKE NAMES HOWARD FREY MANAGER OF ENGINEERING

Howard A. Frey has been appointed manager of engineering, Locke, Inc., according to an announcement by Russell G. Bellezza, president.

A graduate of Johns Hopkins University, Frey has been associated with Locke since 1926. He succeeds W. Scott Hill who is now with the transformer and allied products division of the apparatus department of General Electric Co.

BATTELLE MAN NAMED HEAD OF ELECTROCHEMICAL SOCIETY

Dr. Charles L. Faust, head of electrochemical engineering research at

Battelle Institute, Columbus, Ohio, has been named president of The Electrochemical Society, Inc., succeeding A. L. Ferguson, professor of chemistry at the University of Michigan.

Dr. Faust has been a pioneer in the development of electropolishing, a process which eliminates costly time-consuming mechanical polishing methods used on such items as refrigerator and automobile trim. He will also head the Society's board of directors.

R. J. McKay, chemical engineer, The International Nickel Company, Inc., was elected a vice president of the Society.

Other officers of the Society include: Dr. Ralph M. Hunter, manager of Dow Chemical's electrochemistry division, vice president; Dr. J. C. Warner, president-elect of Carnegie Institute of Technology, vice president; Dr. Henry B. Linford, associate professor of chemical engineering at Columbia University, secretary; and E. G. Widell, Radio Corporation of America, treasurer.

FERRO OVEN, DRYER SALES APPT.

The appointment of Harry M. Platt, of Allentown, Pa., as industrial oven and dryer sales representative in Eastern Pennsylvania for Ferro Enamel Corporation was announced recently. It was stated that Platt's duties will include the sale of ovens, dryers, metal cleaning machines and complete synthetic finishing departments. Platt formerly was associated with public utility companies in the Philadelphia area as an industrial engineer.

ALL RESISTANCE WELDING SPECIFICATIONS BEING REVIEWED

In view of tremendous improvements made in the resistance welding industry, all standard specifications drawn up several years ago by the Resistance Welder Manufacturers Association are now undergoing review and revision, according to an Association report. This work is under the direction of A. L. Williams, of The Federal Machine and Welder Company, and chairman of the RWMA technical committee.

AVCO COMPLETES APPLIANCE LINE WITH BENDIX STOCK PURCHASE

Working control of Bendix Home Appliances, Inc. has passed to Avco Manufacturing Corp. as the result of Avco's purchase of about 16% of the Bendix stock, according to a report.

Avco's purchase of Bendix stock has resulted in the company's rounding out its line of home appliances. Bendix manufactures automatic washers, ironers and dryers. Through its Crosley division, Avco produces re-

frigerators, freezers, ranges, radios and television sets; through its American Central division, it manufactures sinks and kitchen cabinets.

It was indicated that no changes in the present "hard hitting" promotional campaign for Bendix products would be made as a result of the stock sale. Judson B. Sayre, president of Bendix, pointed out that distributors of Crosley appliances will not be offered the Bendix line of home laundry equipment.

HOTPOINT INTRODUCES NEW LINE OF COMMERCIAL RANGES

Commercial ranges at end of assembly line in recently tooled plant.

Hotpoint, Inc. has completed the tooling and machine installations of its 500,000 square foot electric commercial cooking equipment plant at Chicago Heights, Ill., and is producing a new line of heavy duty ranges and bake ovens, James J. Nance, president, has announced.

The plant was acquired shortly after the war as part of the company's $35 million Chicago area postwar expansion of facilities for the manufacture of complete kitchens and laundries for home installation and the production of institutional equipment.

Section of range can be operated as one unit for over-all surface cooking at same temperature, as shown, or can be used independently.

The new ranges have heavy duty thermostats to control surface heat from 250° to 850°, and permit every type of surface cooking under automatically controlled temperature conditions, according to Orrin E. Wolf, vice president of Hotpoint's commercial division. Wolf said that the new models no longer have the traditional black finish, but have been given a silver-gray porous finish that is attractive and "grease-proofed" to remain bright and new-like under long exposure to intense heat.

The complete new line was shown for the first time at the National Restaurant Show in May at the Navy Pier in Chicago.

ACORN-ORIOLE GAS RANGE DISTRIBUTORS FIRST MEETING

At the first get-together for Acorn-Oriole distributors, since that division of Perfection Stove Company was organized, W. M. Barber, sales promotion and advertising manager, revealed that Perfection will spend $250,000 during the rest of 1950 advertising the Acorn-Oriole line of ranges.

The Acorn-Oriole line was purchased by Perfection from Standard Gas Equipment Corporation, of Baltimore, in 1949.

HIGH WASHER PRODUCTION ERASES INVENTORY SHORTAGES

"The high level of production during March and April seems to have wiped out the shortages of inventory in many lines of household washers which existed on the dealer level during the first quarter," according to an announcement by H. Paul Nelligan, head of the American Home Laundry Manufacturers Association, and president of Easy Washing Machine Corp., Syracuse, N. Y.

"Some downward trend in factory sales is expected in the remainder of the second quarter, because of seasonal adjustments. In some cases manufacturers are reported to be having difficulty in obtaining vitreous enam-

eling stock for tubs and porcelain parts."

Nelligan predicted that factory sales of standard-size washers in the first half of 1950 would show an increase of 40-50 per cent over the same period in 1949.

Industry-wide figures released by AHLMA revealed that factory sales of standard-size household washers in April totaled 333,072 units, and in March totaled 423,802 units, second highest month in history.

COTNER HEADS HYDRAULIC PRESS

John C. Cotner has been appointed president of The Hydraulic Press Mfg. Company, Mount Gilead, Ohio, according to an announcement.

GRAEBNER JOINS FAHRALLOY

Al Graebner has joined The Fahralloy Company, Harvey, Ill., as a sales engineer. He formerly headed Graebner Engineering Co., Chicago, an organization to assist casting users in designing castings, as well as assisting in their procurement. It was stated that Graebner will continue to carry on these functions exclusively with The Fahralloy Company, manufacturers of chromium-nickel alloy castings in various grades for heat and corrosion resistance applications.

YOUNGSTOWN SHEET AND TUBE ADVANCES TOP EXECUTIVES

At the annual meeting of directors of The Youngstown Sheet and Tube Company, Frank Purnell, president for more than 20 years, was elected chairman of the board.

J. L. Mauthe, vice president in charge of operations, was elected president. A. S. Glossbrenner, assistant vice president in charge of steel operations, was elected vice president in charge of all operations.

EASTERN ENAMELERS ELECTION OF OFFICERS

New officers of the Eastern Enamelers Club, elected by letter ballot, are as follows:

President, Clay Ellinger, enamel superintendent, Philco Corporation; Vice President, William Paul, enamel superintendent, Harry Weiskettel Co. G. H. Spencer-Strong and Howard Williams, both of Pemco Corporation, were reelected to the respective offices of treasurer and secretary.

The new officers were announced at the May 13 luncheon meeting of the Club at Hotel Sylvania, Philadelphia. Following the announcement of the new officers, Herbert Turk, Pemco vice president, presented Nathan Klein, of Caloric Stove Corp., retiring Club president, with a leather engraved cigar humidor on behalf of the members of the organization.

Ernest Hommel, president of The O. Hommel Company, then spoke on the subject "The Ceramic Industry of the British Isles." Mr. Hommel had just returned from a trip abroad where he had an opportunity to visit various ceramic plants in England.

MULLINS TO ENTER DISHWASHER FIELD IN FALL

Almost unveiled — but not quite — is the new Youngstown Kitchens dishwasher. Left to right are: D. F. Rucks, Jr., assistant sales manager; Julian Schwander, Schwander Appliance Co.; Harry M. Heckathorn, executive vice president; George E. Whitlock, president; Robert Sweeney, Buhl Sons Co.; Charles A. Morrow, vice president — merchandising; Peter Sampson, Sampson Company; and J. A. Rishel, Jr., manager, Mullins appliance sales.

Mullins Manufacturing Corporation will enter the electric dishwasher field in September with a 27″ automatic dishwasher and a 48″ sink, as additions to its Youngstown Kitchens line, according to George E. Whitlock, president.

Whitlock said that the firm is spending more than $1,000,000 for new dies and equipment and in remodeling 64,000 square feet of factory space for production of the units.

While details of the new dishwasher were not revealed, the announcement said the units operate on a new and "revolutionary" dishwashing principal that is the product of several years' research and field testing. Production on the new units was begun in June in the company's Salem (Ohio) plant.

Executives of 64 national distributing firms handling Youngstown Kitchens saw the new products and heard merchandising plans at factory meetings in May.

WHIRLPOOL UPS WASHER PRODUCTION 26 PER CENT

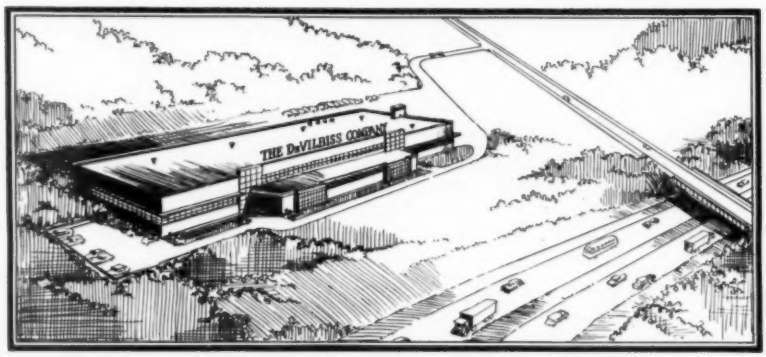
A 26 per cent increase in its automatic washer production has been revealed by Whirlpool Corporation, manufacturers of home laundry equipment. At the same time, it was an-

nounced the production of electric ironers was being raised by 33 per cent. The advanced production schedule, effective early in June, was announced by Kenneth MacGrath, vice president in charge of manufacturing.

"There has been no seasonal slump in our sales," said Robert M. Mitchell, Whirlpool sales manager. "Demand continues high. This increase in production is necessary to fill orders."

Manufacturing in the company's newly acquired dryer plant will begin about mid-July, indicated Mitchell.

DEVILBISS TO ESTABLISH NEW PLANT IN PENNSYLVANIA



The DeVilbiss Company, manufacturers of air compressor outfits and spray finishing equipment, and a leading producer of atomizers which were invented by the company's founder more than 60 years ago, will soon establish a modern manufacturing plant in Somerset, Pa., it has been announced by the company's general offices in Toledo, Ohio.

The early start of operations in Somerset will result in closer cooperation with many of its major suppliers and permit more rapid and economical distribution to its customers, and will greatly improve the company's competitive position, the announcement stated.

COWLES CONDUCTS METAL CLEANING CLINIC

The theme of a recent sales clinic conducted by Cowles Chemical Company, Cleveland, Ohio, was "Buffing Compound Removal *Was* a Tough Job!" C. W. MacMullen, technical director, and M. P. Boland and C. G. Ozar conducted a series of technical discussions; E. F. Clark, manager, metal cleaner department, led discussions on sales problems and policies.

Shown in the photo are members of Cowles metal cleaner technical staff who participated in the discussions and demonstrations. Left to right, seated, are: Fred H. Hitchcock, John W. Dobson, Robert L. Smith, M. P. Boland and Norman E. Garman; standing, left to right, are: J. A. Barnes, Clyde E. Lowe, E. A. Lord, C. W. MacMullen, E. F. Clark, Charles W. Churchill and C. G. Ozar.

Formal announcement of a series of new company products specifically designed for "efficient buffing compound removal" was made at the clinic, it was stated.

VEDOC SALES APPOINTMENT

L. H. Miller, manager, Liquid Plastics Division of Ferro Enamel Corporation, has announced the appointment of Philip J. Carragher to handle the sale of the company's Vedoc organic finishes in the Western Ohio territory.

Carragher was recently associated with Paraffine Company, Inc., in the Los Angeles area as industrial paint representative. Other previous connections include The Glidden Company and Goodyear Export Company.

ASIE RANGE MERIT AWARD TO DETROIT-MICHIGAN STOVE

Detroit-Michigan Stove Co. has been presented the 1950 Merit Award of the American Society of Industrial Engineers for "outstanding contributions to productive arts and sciences in its field."

The presentation was made to John A. Fry, president of Detroit-Michigan, by Ivan Cuthbert, chairman, ASIE award committee. The Award is the only one presented to a manufacturer of cooking ranges. In the plumbing ware field, the ASIE 1950 Merit Award went to Briggs Manufacturing Co. *(March 1950 finish).*

MAYTAG, HOTPOINT MEN NAMED DIRECTORS OF AMA

Roy A. Bradt, vice president–sales, The Maytag Company, and James J. Nance, president, Hotpoint, Inc., were recently elected new directors of the American Management Association along with ten other well-known executives, according to an AMA report.

Other new directors of the Association include: Earl M. Richards, vice president–operations, Republic Steel Corporation; Wilbur H. Norton, vice president, General Motors Corporation; Charles S. Craigmile, president,

Belden Manufacturing Co.; Erwin H. Schell, department of business and engineering administration, Massachusetts Institute of Technology; Keith Powlison, vice president and controller, Armstrong Cork Company.

Coleman L. Maze, chairman, department of management and industrial relations, New York University; Harold V. Coes, retired vice president, Ford, Bacon & Davis, Inc.; Lyman B. Brainerd, president, The Hartford Steam Boiler Inspection and Insurance Co.; Keith S. McHugh, president, New York Telephone Company; and James L. Palmer, president, Marshall Field and Company.

TAPPAN PROMOTES MABEE

William R. Mabee, plant superintendent, has been elected vice president and assistant general manager of The Tappan Stove Company, it was announced following a meeting of the company's board of directors at which time all other officers of the company were reelected.

Mabee joined Tappan in 1927. He worked in the accounting, payroll and production departments as a clerk until 1934 when he was appointed production manager. He was named assistant superintendent in 1940, and appointed plant superintendent in 1945.

COPPER-CLAD MALLEABLE RANGE ELECTS NEW OFFICERS

Arthur H. Stein was named president and treasurer of Copper-Clad Malleable Range Co., St. Louis, at the annual meeting of the firm's board of directors. Stein started with the company 36 years ago in the sales department. He was elected secretary and director in 1925, and treasurer in 1948. It was stated that Stein will also assume the general managership of the company.

Other officers elected were Charles R. Binns, vice president; Roland M. Hoerr, vice president; and Herbert L. Hetzler, secretary.

BRIGGS LAUNCHES BEAUTYWARE CARAVAN

Seven large "mobile showroom" trailers, each containing Briggs Beautyware plumbing fixtures, have been launched on a nationwide caravan trek, according to an announcement from the Plumbing Ware Division of Briggs Manufacturing Co.

Each trailer contains two complete showrooms stressing colored plumbing fixtures. The forward portion of each trailer is centered around plumbing ware in "Sea Green" while the rear portion is furnished with "Sky Blue" fixtures in a setting of blending colors.

It was stated that especially trained men have been selected to guide each trailer on a planned schedule in order to service the nearly 500 Briggs wholesale distributors from coast to coast as well as architects, builders, housing authorities, etc.

IFMA NAMES NEW PRESIDENT

The Industrial Furnace Manufacturers Association has announced that Henry M. Heyn, sales manager, heat treatment division, Surface Combustion Corp., Toledo, has been elected president of the Association.

PENNSALT NAMES HURLEY SALES PROMOTION MANAGER

The appointment of Paul C. Hurley, Jr., as manager of Pennsylvania Salt Manufacturing Co.'s newly-created sales promotion department, has been announced by William P. Drake, vice president in charge of sales. Hurley joined the Pennsalt organization in 1943.

NEW SHARON STEEL PRESIDENT

H. A. Roemer, Jr. was elected president, director and a member of the executive committee of Sharon Steel Corp. at a recent meeting of the board of directors. He succeeds Henry Roemer, president for the past 18 years, who will retain the position he also held as chairman of the board.

CRIBBEN & SEXTON CITED FOR TELEVISION ADVERTISING

At the eighth annual awards competition meeting of the Chicago Federated Advertising Club, a 1950 Award Certificate was presented to Cribben & Sexton Company for "outstanding excellence of television advertising" produced for Universal gas ranges.

The television film features an animated flame character (see photo) who opens each announcement by

dancing around the top burner of a Universal gas range. He then introduces the announcer and makes way for a "live" cooking demonstration.

John J. Brandt, sales promotion manager of Cribben & Sexton, accepted the certificatae at the award dinner.

ALL-ELECTRIC KITCHEN, LAUNDRY BEGINS TOUR OF COUNTRY

An all-electric kitchen and home laundry on wheels has been launched on a southern tour as the first leg of a nation-wide trip. Manned by home economists and factory representatives of Hotpoint, Inc., the trailer will visit more than 50 cities in Alabama, Kentucky, Mississippi and Tennessee. When connected to power and water lines, the pushbutton range, automatic dishwasher, disposal, refrigerator, and laundry appliances operate as if they were installed in a home.

Fred J. Walters, vice president, and Edward R. Taylor, sales manager, Hotpoint, are shown inspecting the trailer which will take the complete kitchen, laundry and planning facilities to "housewives' doorsteps throughout nation."

ALLEGHENY LUDLUM PLANT IMPROVEMENT PROGRAM INCLUDES "CURTAIN WALL" RESEARCH BUILDING

Approval by the board of directors of Allegheny Ludlum Steel Corporation of a new $23,600,000 plant improvement program, to be completed in the next three years, was announced by H. G. Batcheller, chairman of the board. This program is in addition to a five-year program costing $30,000,000 started immediately after the war and now in the final stages of completion.

Manufacturing improvements include a new hot strip mill and additional cold rolling facilities at the Brackenridge plant and additional cold rolling equipment at the neighboring plant at West Leechburg, Pa.

The new program also includes a project calling for the erection near Brackenridge, Pa., of a new research laboratory to be built of *stainless curtain-walls* instead of the more conventional building materials. The new building, overlooking the company's Brackenridge plant, will provide the latest facilities for all phases of metallurgical research, the report states.

PENNSALT OPENS DETROIT OFFICE

Pennsylvania Salt Manufacturing Company has announced the opening of a new district sales office at 535 Griswold St., Detroit, with Harry G. Potts, district sales manager of Pennsalt's heavy chemicals department, in charge. With the opening of the new Detroit office, Pennsalt is discontinuing its former sales office at its Wyandotte plant, it was stated.

BERNHARDT RESIGNS FROM GRAND

James Mitchell, president, Grand Home Appliance Co., has announced the resignation of S. C. Bernhardt, vice president and sales manager. The promotion of Reid Lavender as general sales manager was then announced by Mitchell.

AMERICAN STANDARDS ASSN. HONORS HAROLD MASSEY

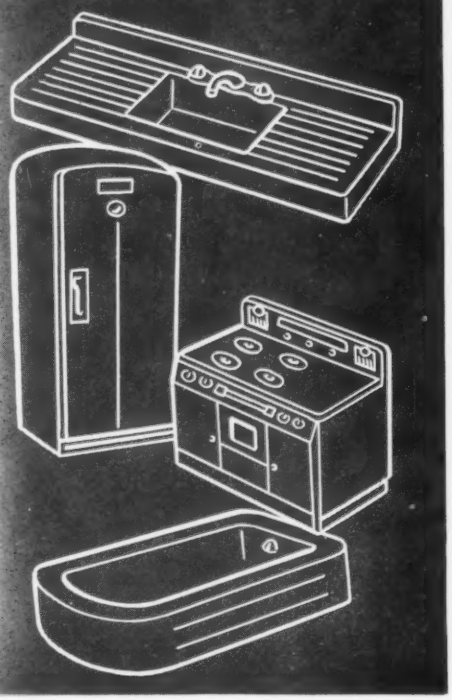
The Gas Appliance Manufacturers Association has announced that Harold Massey, GAMA's assistant managing director, has been honored by the American Standards Association.

Massey was presented with a special citation in "recognition of his contributions to the democratic processes leading to the establishment of voluntary American Standards and in appreciation of his sound advice and devotion of energy to the furtherance of the Standards movement, as a means of advancing the national economy."

The presentation was made by Thomas D. Jolly, ASA president, and chairman of the board of Aluminum Company of America. It was pointed out that the primary function of the

Sodium Antimonate Gives You ...
8 FINISHING TOUCHES

- true white color
- high degree of opacity
- high acid resistance
- improved lustre
- greater stability
- high strength
- maximum adhesion
- uniform high quality



Used either for regular and acid-resisting dry process cast iron enamels . . . or for antimony type sheet steel enamels, Metal & Thermit's Sodium Antimonate frit opacifier assures you of both beauty and durability in your finish. Manufacture is rigidly controlled for conformity of color in the frit and maximum opacity and lustre in the finished enameled ware.

NOTE: M & T Antimony Oxide is also *specially processed* for the manufacturers of sheet steel frits.

Call upon M & T — Headquarters for Opacifiers — for assistance. Our staff of ceramic experts and our Ceramic Service Laboratory are available to help you, whatever your problem. We welcome your inquiry.

METAL & THERMIT CORPORATION

Ceramic *Division*

100 East 42nd St. New York 17, N.Y.

Headquarters for Opacifiers

Tin Oxide
Antimony Oxide
Sodium Antimonate
Ultrox (*Zirconium Opacifier*)
Zircon

ASA is to provide systematic means for the establishment of American Standards.

ACME STEEL EXECUTIVE APPT.

Carl J. Sharp, president of Acme Steel Company, Chicago, has announced that the company's board of directors has elected Fred M. Gillies to the position of executive vice president.

Gillies had formerly been works manager for Inland Steel Company from 1922 up to a few months ago; prior to that he was with the old Illinois Steel Company from 1920 to 1922.

CROSLEY REFRIGERATOR RECEIVES FASHION ACADEMY AWARD

The Crosley Shelvador refrigerator, recipient of a Fashion Academy Award for 1950, is the first major home appliance so honored, according to Emil A. Hartman, director of Fashion Academy. Hartman is reported as saying that the presentation was made because Crosley "has gone beyond the functional requirements of the modern refrigerator and has imparted to its Shelvador exceptional features in design of both interior and exterior."

Mr. Hartman, right in photo, is shown presenting the award to W. A. Blees, vice president of Avco Manufacturing Corp. and general sales manager of its Crosley division.

NEW COMPANY TO OFFER PIGMENT DISPERSIONS

Formation of Kromall Chemical and Dispersions Corporation, which is said to have perfected improved techniques for the manufacture of pigment dispersions that will enable paint companies to produce enamels and lacquers having maximum gloss, coverage, adhesion, and hiding powers possible, was announced by Eugene G. Bloch, president. The new company, whose offices and plant are located at 10-12 46th Avenue, Long Island City, will make the pigment dispersions in a wide range of colors.

Commenting on the importance of Kromall's products, Bloch stated "The use of Kromall pigment dispersions completely eliminates the need for grinding pigments through present methods. Those dispersions come ready to be used in any color desired and need only to be mixed."

HINDE & DAUCH UPS MEELFELD

The Hinde & Dauch Paper Co., Sandusky, Ohio, has announced the appointment of Paul Meelfeld, manager of advertising and sales promotion, as assistant vice president of the company. Hinde & Dauch is a Certified Safe Transit Laboratory.

NORGE ADVANCES CLARY

H. L. Clary, formerly general sales manager, has been named vice president in charge of sales of the Norge Division, Borg-Warner Corp. Clary has been associated with the Norge organization for twenty years.

FOOTE REDUCES LITHIUM PRICE

Price reductions up to 10%, effective July 1, have been announced by Foote Mineral Company, producers of lithium compounds used extensively in ceramics and porcelain enamels, air conditioning, all-purpose greases, welding fluxes and many chemical products. Direct savings from newly developed processing techniques makes possible this action, the report states.

L. G. Bliss, manager of sales, said that "these savings in manufacturing costs are being passed on to users of lithium as a continuing policy of the Company. In the past decade, the cost of many lithium compounds has been halved."

REVEAL HAPMAN-DUTTON MERGER

Hapman Conveyors, Inc., of Detroit, and The C. H. Dutton Co., Kalamazoo, have merged under the name of Hapman-Dutton Company, according to a recent announcement. It was stated that W. H. Hapman is president and general manager of the new firm, and that Robert J. Brown is vice president, assistant general manager and treasurer.

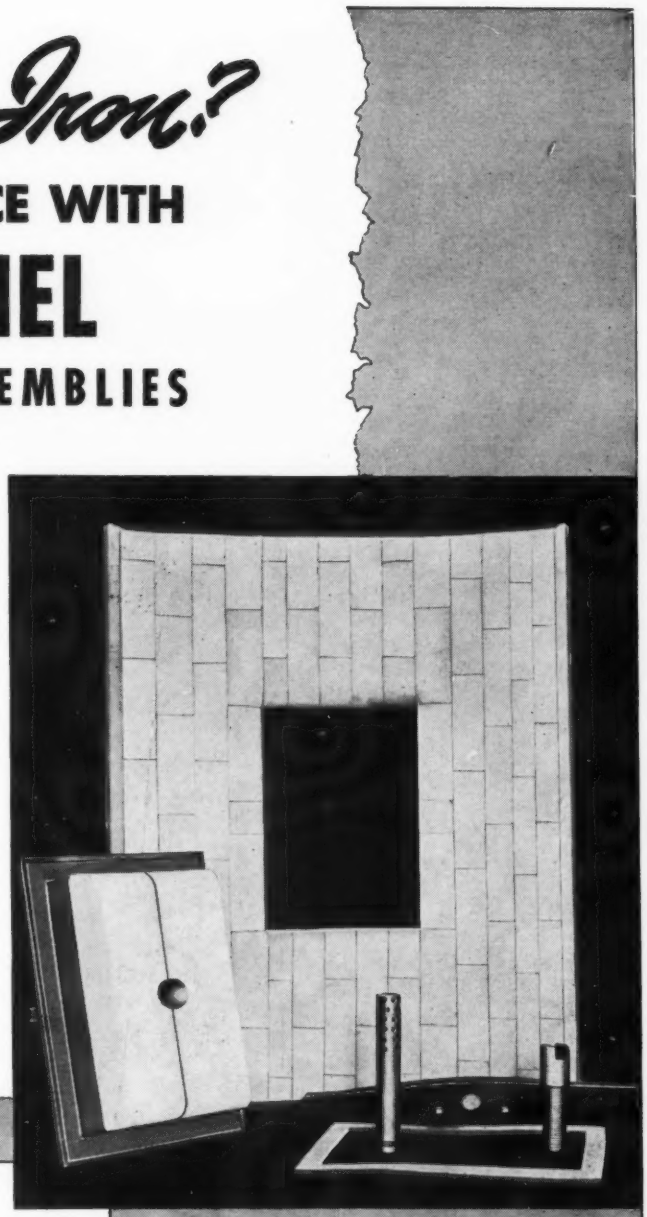
Hapman-Dutton will be composed of two divisions consisting of the Hapman Conveyors Division and the Dutton Boiler Division. Peter P. Ruppe is assistant vice president in

Grind on Iron?

NOT A CHANCE WITH

McDANEL

MILL HEAD ASSEMBLIES



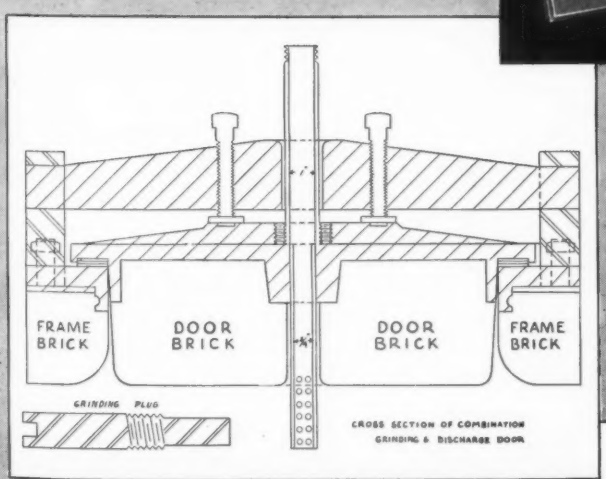
In the sketch below notice how the specially shaped brick completely cover the door and frame castings. With McDanel Mill Head Assemblies it's impossible to grind on iron and contaminate the mill slip.

Notice too the position of the unloading tube. It's impossible for any unground particles to be discharged with the slip.

Yes, McDanel Mill Head Assemblies are "Tops" for quality performance. No wonder enamel shops in plant after plant throughout the country are installing them. They pay for themselves in very short time in operation.

Mill Head Assemblies
Standard Mill Lining Bricks
Metal Covered Grinding Jars and Jar Mills.
Door Lining Blocks
Special Mill Lining Shapes
Porcelain Grinding Jars and Jar Mills.

West Coast Representative
FERNHOLTZ MACHINERY CO.
150 No. Norton Ave., Los Angeles, Calif.



McDANEL REFRACTORY PORCELAIN COMPANY

•

BEAVER FALLS, PA.

CHICAGO VITREOUS ENAMEL PRODUCT CO.
CICERO 50, ILLINOIS
exclusive representative for the Enamel Industry

charge of the Hapman division, and J. David is assistant vice president in charge of the Dutton division.

The principal sales office of Hapman Conveyors Division will be maintained at 19209 West Davison Avenue, Detroit. An engineering, research and testing laboratory will be maintained for the convenience of customers, it was indicated.

HEADS CANADIAN GROUP

It is reported that William F. Holding, president, General Steel Wares, Toronto, has been named president of the Canadian Manufacturers Association.

WEYERHAEUSER UPS KENDALL

Harry T. Kendall, general manager, Weyerhaeuser Sales Co., St. Paul, Minn., has been elected chairman of the board, it has been announced.

The position of general manager, formerly held by Kendall, has been taken over by R. S. Douglas, a vice president, who has been with the organization since 1923. In recent years, Douglas was manager of sales for West Coast mills of Weyerhaeuser Timber Co., Tacoma, Washington.

CROSLEY REFRIGERATOR SALES 75 PER CENT AHEAD OF 1949

Despite large increases in output, sales of Crosley's Shelvador refrigerators are outstripping production, according to W. A. Blees, vice president of Avco Manufacturing Corp., and general sales manager of the Crosley division. Blees stated that Shelvador sales are running more than 75% ahead of last year.

DANA CHASE JR. JOINS FINISH

Dana Chase, owner and publisher of *finish*, announces that Dana Chase

Jr. ("Doc" Chase) has joined the organization following graduation from college.

"Doc" was graduated in June from Ohio University were he received a B.S. in Commerce degree and a commission of Second Lieutenant in the Officers Reserve Corps (Army). He spent six months in the *finish* offices, August 1949 to January 1950 inclusive, and then returned to Ohio to complete his college work.

The new member of the organization will devote his time to circulation and customer service, both in the office and in the field.

CENTRAL ENAMELERS MEET AT MELLON INSTITUTE

REPORTED BY Norman Stolte • PRES., CENTRAL ENAMELERS CLUB

THE May meeting of the Central District Enamelers Club was held on Friday, May 26, in Pittsburgh, Pa. The program was arranged by E. M. Hommel, of The O. Hommel Co., and the Club was treated to an exceptionally fine meeting.

About 50 enamelers visited Mellon Institute of Industrial Research in the afternoon. After a very interesting trip, the group moved across the street to Webster Hall Hotel for a get-together and dinner. Mr. Hommel acted as toastmaster. Among the 80 guests was J. W. Hepplewhite, president of the American Ceramic Society.

Dr. E. R. Weidlein, director of Mellon Institute, gave a brief talk on the history and present setup of the Institute.

Then W. W. Hintalla, of United States Steel Corp., spoke on "Modern Production of Sheet Steel for Enameling." Through slides he presented the equipment and methods used and how it differed from "cold rolled" sheets. During the discussion the usual question "Why are we not getting more enameling iron?" came up for another airing.

Dr. C. E. Creutz, head of the Physics Department, Carnegie Institute of Technology, followed with a discussion of "Atomic Energy Research in the Pittsburgh, Area." He outlined what equipment was available and generally what was being done. A very large atomic research project is being set up outside of Pittsburgh and will be under Dr. Creutz's direction. He pointed out some of the industrial possibilities of atomic energy.

COOLERATOR SALES APPT.

W. C. Conley, Jr. has been named general sales manager for The Cooleator Company, according to Ward R. Schafer, vice president and general manager.

FRIGIDAIRE MAN TO GMC BOARD

General Motors Corporation has announced that Mason M. Roberts, general manager of the Frigidaire Division, has been elected to the GMC board of directors.

ROCKWOOD STOVE WORKS PRODUCING GAS RANGES

Rockwood Stove Works, Rockwood, Tenn., manufacturers of cooking and heating stoves for solid fuels for the past 35 years, is currently producing gas ranges, according to G. Frank Anderson, vice president and sales manager. It was stated that production of electric ranges is under consideration.

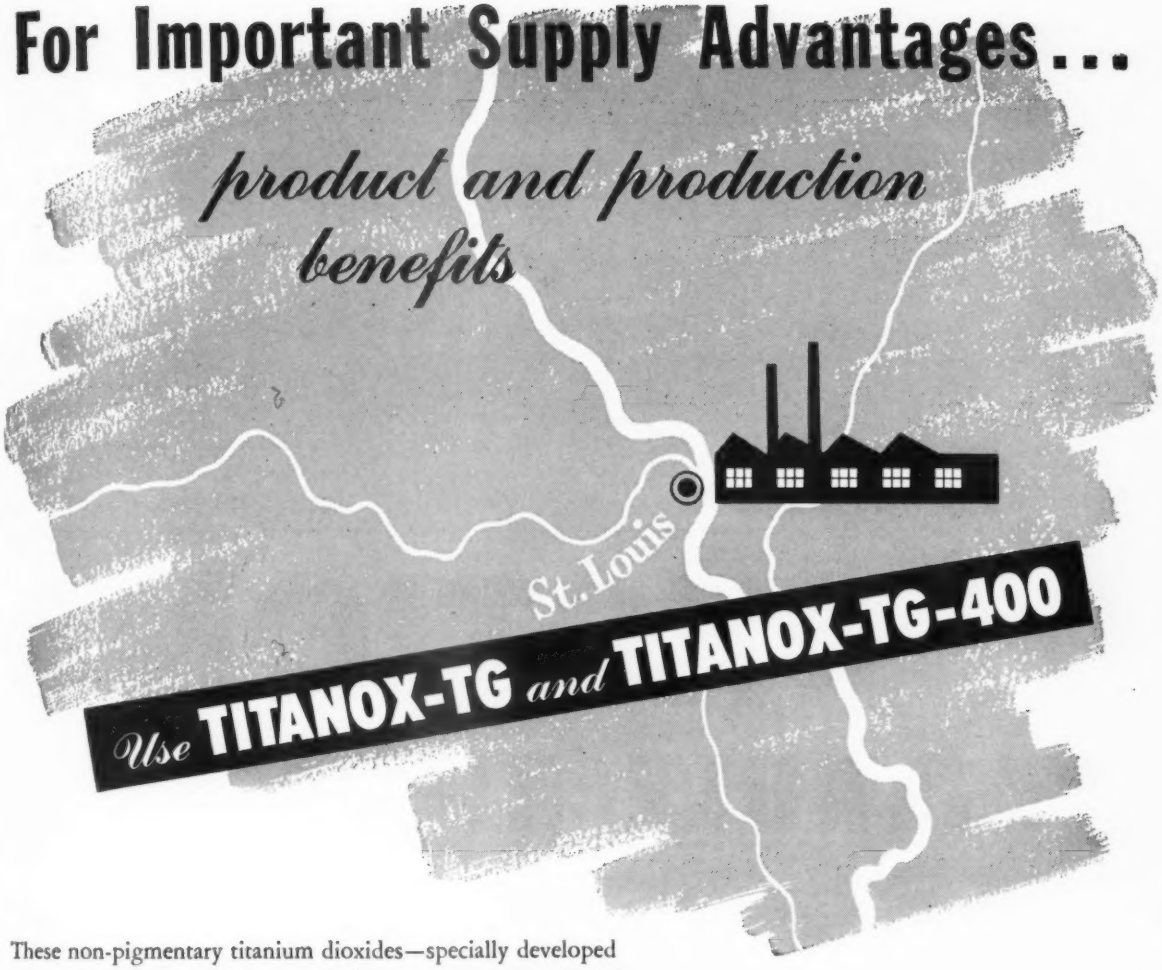
SERVEL HEAD TALKS BEFORE MEETING OF TRADE MARK ASSN.

Before the recent 72nd annual meeting of the U. S. Trade Mark Association, W. Paul Jones, president, Servel, Inc., stated that national advertisers can best protect their trade marks by using only recognized and ethical channels of trade. "It is unfair to

to Page 66 →

For Important Supply Advantages...

product and production benefits



These non-pigmentary titanium dioxides—specially developed for use in vitreous enamels—come from a plant designed solely for their production.

Thus, TITANOX-TG and TITANOX-TG-400 are *fully independent* of *titanium pigments* and *not affected* by abnormal demand for these pigments used in such products as paint, paper, plastics or rubber. You are assured a constant supply of TITANOX-TG and TITANOX-TG-400—replenishable promptly through a centrally located plant.

In your titania enamels, TITANOX-TG provides maximum opacity. TITANOX-TG-400 is designed for use where blue-whiteness is desired. And both of these free-flowing products give you an important plus-value because of their easy working qualities.

We are always ready to help you adapt these TITANOX products to your porcelain enamel formulations. Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y.; 104 South Michigan Avenue, Chicago 3, Ill.; 2600 South Eastern Avenue, Los Angeles 22, Calif. Branches in all principal cities.

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the brightest name in ceramics

TITANIUM PIGMENT CORPORATION

Subsidiary of NATIONAL LEAD COMPANY

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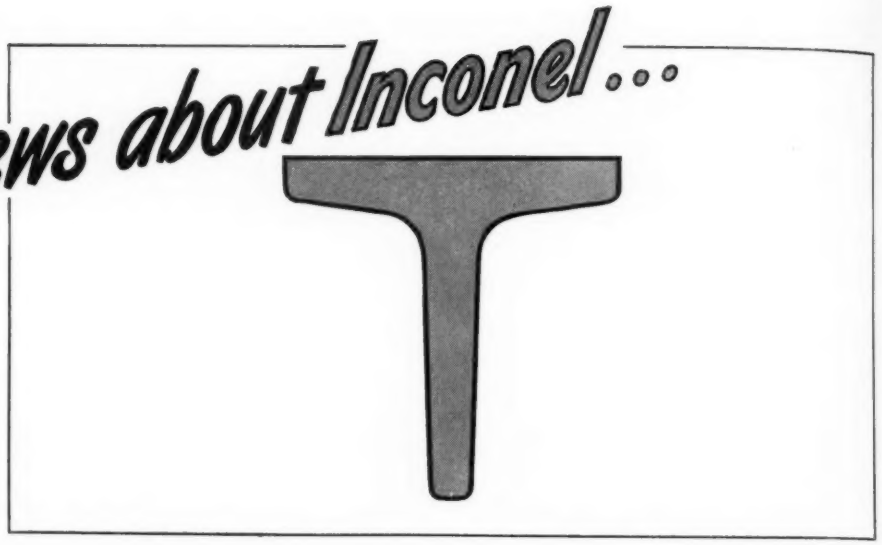
More news about Inconel...



T-SECTIONS AVAILABLE NOW

Designers and fabricators have been asking for them . . . and now they are here!

Inconel® T-Sections, 1½" x 1½" x ¼", are available for immediate delivery.

The new Inconel T-Sections were produced in answer to many requests from fabricators, industrial furnace builders, and plants doing heat-treating. Inconel T-Sections, together with Inconel angles, will simplify numerous design problems in the construction of furnaces and heat-treating fixtures.

Because of its outstanding performance record and excellent cost-to-service ratio, many of the nation's leading fabricators have adopted Inconel as a standard metal for high-temperature equipment. Highly resistant to high temperature and destructive furnace atmospheres, Inconel maintains good properties at temperatures up to 2200 F°. Welds in Inconel are as heat- and corrosion-resistant as Inconel itself.

If you would like full engineering information about Inconel or help with your metal-selection problems, write to our Technical Service Department.

Your nearest INCO distributor is prepared to fill your Inconel needs from stock.

THE INTERNATIONAL NICKEL COMPANY, INC.
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EMBLEM OF SERVICE INCO TRADE MARK

INCONEL *... for long life at high temperatures*

Steel product manufacturers tour steel mill

Pacific Coast District Enamelers Club visits Kaiser plant

by Malden Grange Bishop • FINISH CORRESPONDENT

WITH the largest attendance in the history of the organization, the Pacific Coast Enamelers Club used their June meeting for a special tour of Kaiser Steel Corporation's sprawling steel plant at Fontana, California. More than 120 members and their guests were coralled at the parking lot of Norris Stamping & Manufacturing Co.'s Los Angeles plant on Friday morning, June 9. There Joe Disario, of Smoot-Holman Co., and Club president, made a 30-second speech from the bumper of a car, and Glenn Fulton, of Norris Stamping, herded the drove into three chartered buses.

At the Kaiser plant, 45 miles from Los Angeles, Bill Senieke, Kaiser public relations man, greeted the members on the lawn of the administration building where photos were taken.

After luncheon at the plant's cafeteria, the members returned to their buses, where a special guide was assigned to each bus load. Each bus was then conducted on an individual tour of the 1300-acre plant, the West Coast's first and only complete steel-making facility.

From raw materials to sheet steel

For the first time for most of them, Club members watched the process of turning raw materials into finished steel products. They watched the emptying of some of the 45 coke ovens, where coal from the Kaiser-owned Sunnyside Mine, in Carbon County, Utah, is converted into furnace coke, and a long list of commercial by-products are picked up at the same time. During the 20 hours that the powdered coal is heated to 3000° F. in the ovens, coke oven gas is captured and fed into the by-products plant, a "plumber's nightmare," where it is used to heat the soaking pits, and it is processed for the removal of ammonia sulphate, creosote oil, benzol, naphtha, tuluol, xyol, phenol, and other valuable chemicals. The profits of these by-products more than pay for the expesive process of turning the coal into coke.

The Club members saw the giant blast furnace which reaches nearly 100 feet into the sky above the near-

Photo shows part of the group which toured the Kaiser steel plant. Grouped around the sign, left to right, are officers of the Club: Howard Burlingame (white sports jacket), vice president; Larry Bohon (behind Burlingame), secretary-treasurer; H. Leggett, assistant secretary-treasurer; N. W. Neice, publicity chairman; R. W. Armour, program chairman; and Joe Disario, president.

Aerial view of the Kaiser Steel Corporation steel plant at Fontana, California, which the group of Pacific Coast enamelers toured.

by orange groves. They saw where the raw materials—iron ore, coke, limestone, and alumina clay—were dumped into the top of the furnace to become molten masses, either non-metallic slag or pure iron, as it worked its way to the bottom to be tapped off at regular intervals.

They saw the liquid pig iron run from the blast furnace into torpedo cars, which hauled it along some of the 50 miles of railroad inside the plant, to one of the seven 185-ton-per-heat open hearth furnaces. Here the pure iron is mixed with scrap iron, at 60%—40%, and other alloying metals, and converted into steel in 10 to 11 hours.

They watched the raw steel gush from the open hearth furnaces into giant ladles, which were picked up by cranes and emptied into ingot molds setting on long railroad car. When the molds were full—6½ to 12 tons in a mold—they were hauled over to the stripper mill. Here the molds were removed and the ingots sent on to one of the great two-door soaking pits, where the ingots were held until they soak up an even 2400° F. of temperature throughout the glowing mass.

Members stood on an observation platform and watched the powerful steel fingers of a crane reach down into the soaking pit and pull out ingots, and set them in an ingot buggy to be hauled over to the 36-inch blooming mill. Then they went over to the blooming mill and watched an ingot being passed back and forth between rollers until the glowing hunk was squeezed into a long square bar, which was then rolled down some of the 14,000 feet of conveyor lines to the structural mill to be rolled again, this time into structural beams.

Cold rolled production

Because it would have required many hours, the members did not visit all of the mills in the family of mills—the structural mill, the plate mill, the merchant mill, the pipe mill, and the cold rolled mill. But they saw some of them. They were particularly interested in the cold rolled mill where they saw the coils of skelp, which came from the merchant mill, being reduced to the gauge which they later find in their own plants as fabricated parts of a thousand different products.

Western industrial development

It was after midnight before the buses stopped at Norris Stamping's parking lot again. Club members were happy that their officers had arranged the trip, for they had seen and learned some things which would not have been possible otherwise. And they were proud too. Proud of the industrial development of the West, of which they as enamelers were a part and which the Kaiser Steel plant helped to make possible.

They had learned that Kaiser has tapped a 40-year supply of iron ore, ranging from 53% to 55% metallic iron, in the Eagle Mountain Mine, Riverside, California. It digs its coal from a 40-year supply in Carbon County, Utah. It finds its limestone within 12 miles of the plant. Its manganese, fluorspar and other alloying metals come from California, Nevada, and Arizona.

No stockpile of steel on the West Coast

In eight years since turning the first shovel of dirt to establish the plant, the Kaiser Steel project has become a giant among giants. But it still has no stockpile of steel products. It is constantly expanding, and sets new production records each month. But you can't buy anything from their warehouses. The steel-hungry western industries grab the steel products before they cool from the rollers of the mills. In fact, the full capacity production of the plant is bought before the raw materials can be torn from the earth and started on their 3000° F. trip into the forms and shapes from which more things are fashioned for more and more people.

PROTECT THOSE VALUABLE FINISHED PRODUCTS With the Right Box or Crate

★

NAILED OR HINGED CORNER PLYWOOD CRAVENEER WIREBOUND BOXES OR CRATES

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Consult with our packing engineers on product protection — Our designing and testing laboratory is at your service, without obligation.

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Plants at: Helena, Ark. • Greenville, Miss. • Tallulah, La. • Rockmart, Ga. • Chicago, Ill.

Gas appliance manufacturers meet at White Sulphur Springs

(Continued from Page 34)

water as well as those with hot and cold running water and those without piped water. In these items, GAMA will get the most comprehensive picture ever provided of the use of, and of the market for, gas appliances in the United States," continued Hauser.

Availability of census statistics

"The mine of Census statistics are available to business in three different ways," said the speaker. "First, in published form readily available through the Government Printing Office at nominal cost, or directly through the Bureau of Census for small free publications.

"Second, there is always available within the Bureau a vast amount of unpublished information too specialized for general publication, but frequently having great value for specialized purposes. Such data can be obtained at the nominal cost of transcription, photostating or micro-filming.

"Third, there are many ways of obtaining custom-made Census data on a cost basis. Special tabulations can be made on punched cards, data can be rearranged for specific uses, or matching types of studies can be conducted. In the latter type of study, enterprises furnishing lists of subscribers or clients can obtain from the Census the characteristics of such clients or subscribers en masse for comparison with the total population. It should be emphasized that in the latter type of study, information is never available for an individual person or establishment, but only in statistical tables in groups large enough to prevent any individual identification."

In conclusion, Hauser told the gas appliance manufacturers that "The 1950 Census data will provide members of GAMA with basic direct and indirect consumer marketing data. They will enable you to compare your own actual sales with sales potentials for the richest markets in the world. The 1950 Census data will be the most comprehensive, the best presented, and most significant marketing information ever made available for the United States."

GAMA membership reaches 580

Twenty new members joined the Gas Appliance Manufacturers Association during the two months immediately preceding the annual meeting, reported H. Leigh Whitelaw, managing director of GAMA.

According to Whitelaw, this is not only a record gain in membership for any two months period but a new high for total membership. There are now 580 manufacturers represented in the Association.

The new members were named as follows:

McGraw Electric Company, Chicago; Beverly Heating Supply Co., Beverly Hills, Calif.; Brandes Company, Madison, Wis.; Consolidated Iron-Steel Mfg. Co., Cleveland, Ohio; A. Belanger Ltd., Montmagny, Quebec, Canada.

Perfection Water Heater Co., Los Angeles; W. T. Carmichael Ltd., Waterloo,

IT'S WHAT YOU NEED-- NOT WHAT WE HAVE-- THAT'S IMPORTANT

We don't have to try and sell you what we have, because we have just about everything.

SUPERSTRONG comprises a complete line of wirebound, wooden and corrugated fibre boxes or crates. They are designed and fitted to your product-with no need to try and fit your product to a ready-made box.

The improved design and sturdy materials of all SUPERSTRONG shipping containers give you not only increased protection, but increased economy. Let us tell you all the whys and wherefores.

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WIREBOUND BOXES and CRATES
WOODEN BOXES and CRATES
CORRUGATED FIBRE BOXES
BEVERAGE CASES
STARCH TRAYS
PALLETS

RATHBORNE, HAIR AND RIDGWAY BOX CO.
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N.S.W., Australia; Dewey-Shepard Boiler Co., Indianapolis; National Gas Logs, Inc., New York City; Turb-O-Tube Furnace, Inc., Buffalo, N.Y.

Koppers Company, Inc., Pittsburgh; Banner Manufacturing Co., Columbus, Ohio; Van-Packer Corporation, Chicago; Heating Publishers, Inc.; New York City; Hess Company, Cicero, Ill.

Rochester Products Division, General Motors Corp., Rochester, N. Y.; Superior Furnace & Mfg. Co., Plymouth, Mich.; E. L. Estes Mfg. Co., Shawnee, Okla.; Anchor Division, Stratton & Terstegge Co., Inc., New Albany, Ind.; Good Items, Inc., Chicago; Plumbing & Heating Journal, New York City; Chimney Furnace Corp., Rockville, Md.; and Lyon Metal Products, Inc., Aurora, Illinois.

Meritorious awards presentation

Executives in the gas industry who received GAMA's "Meritorious Service Awards", presented by Mr. Hobson, at the president's dinner, included the following:

Frank J. Nugent, sales manager, Ingersoll Steel Division, Borg-Warner Corp., Kalamazoo, Mich.; Frank L. Meyer, president, Meyer Furnace Co., Peoria, Ill.; John W. Hebert, president and general manager, Calcinator Division, Valley Welding & Boiler Co., Bay City, Mich.

Philip S. Harper, president, Harper Wyman Co., Chicago; Arthur Friedman, vice president, Cleveland Heater Co., Cleveland, Ohio; R. T. Killiam, commercial research manager, and K. T. Davis, chief engineer, Bryant Heater Division, Affiliated Gas Equipment, Inc., Cleveland.

Leland M. Feigel, sales manager, Gas Water Division, Servel, Inc., Evansville, Ind.; Col. A. E. Higgins, International Division, Rockwell Mfg. Co., Pittsburgh; E. C. Adams, president, Adams Bros. Mfg. Co., Pittsburgh; C. L. Hewitt, general sales manager, L. J. Mueller Furnace Co., Milwaukee.

Bruce R. Tritton, vice president, American Stove Co., St. Louis; E. A. Norman, Jr., president, Norman Products Co., Columbus, Ohio; W. M. Nyler, Jr., chief engineer, Janitrol Engineering Dept., Surface Combustion Corp., Columbus.

L. A. Brand, vice president, Empire Stove Co., Belleville, Ill.; C. C. Warwick, general traffic manager, Rheem Manufacturing Co., Sparrows Point, Md.; Alvin M. Stock, New York representative, Partlow Corp., New Hartford, N. Y.; and A. B. Ritzenthaler, vice president, The Tappan Stove Company, Mansfield, Ohio.

Frederic Hess heads new slate

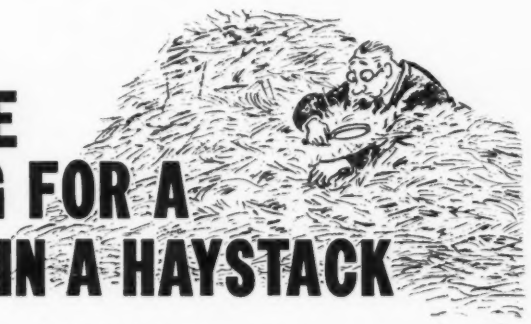
Frederic O. Hess, president, Selas Corporation of America, was elected president of the Gas Appliance Manufacturers Association. He succeeds Stanley Hobson whose term expires September 30th.

Other officers elected, who will also take office in October, include: First vice president, Louis Ruthenburg, chairman of the board, Servel, Inc.; Second vice president, A. B. Ritzenthaler, The Tappan Stove Company; Treasurer, Lyle C. Harvey, president, Bryant Heater Division and Affiliated Gas Equipment, Inc.; and Secretary, H. Leigh Whitelaw.

October exhibition a sell-out

Lyle C. Harvey, chairman of the Association's trade show committee, reported that the October GAMA exhibition has been a space sell-out for more than three months and promises to show more new and improved products than any previous show. The exhibition will be held in Atlantic City in conjunction with the annual convention of the American Gas Association, October 2-6.

Harold Massey, assistant managing director of GAMA, in charge of the October exhibition, stated that 1,200 gas-operated products were displayed at the last show two years ago and that figure will be exceeded this year. He reported that thousands of appliance distributors and dealers have been invited to attend the ex-



IT'S LIKE LOOKING FOR A NEEDLE IN A HAYSTACK

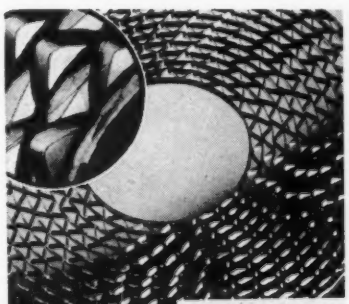
IT'S always difficult to find a needle in a haystack, so the saying goes, but it is just about as difficult to find iron in your finished wares if you use FRANTZ FERROFILTERS. The FERROFILTER acts like a fine tooth-comb, removing the invisible iron particles that are carried in your wet enamel and preventing them from appearing as spots in the finished ware. This proven method of removal of iron is simple and economical, making possible a greater percentage of acceptable goods and insuring increased salability of your products.

The heart of the FERROFILTER is a series of patented magnetized grids, with the proper opening sizes furnished in accordance with the consistency of the materials to be treated. The hundreds or thousands of feet of strongly magnetized grid edges comb and recomb the flowing materials, splitting the flow streams into thin elements and forcing each particle of iron to pass very close to them. As a result all ferrous particles are magnetically strained out.

FRANTZ FERROFILTERS are in successful operation in hundreds of plants throughout the world. They are doing their job and doing it well — in small plants, in large plants, and in great plants.

You, too, will find it advantageous to install FRANTZ FERROFILTERS in your millroom and other important production points. There are sizes and types to answer all your requirements. Why not write today for full information?

NOTE: For dry process enamelers: Our Dry FERROFILTER Model 68V is successfully removing iron from dry enamel in important plants.



Above — The heart of this Electro-magnetic FERROFILTER is the patented grid illustrated, of which 16 to 30 units represent hundreds of feet of sharp, magnetized collecting edges.

Right — Gravity type FERROFILTER. Excellent for glaze, enamel, and general use. Light and portable. Made in four sizes.

WET FERROFILTERS
Gravity-Pipeline-Underfeed
DRY FERROFILTERS
For dry process enamels and other ceramic materials

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Authorized Representatives for the Enameling Industry

FERRO ENAMEL CORPORATION
4150 East 56th Street Cleveland 5, Ohio

CHICAGO VITREOUS ENAMEL PRODUCT CO.
1425 So. 55th Court Cicero 50, Ill.

hibition and that utilities are interested in having their executives and salesmen attend the show and the special dealer sales clinic programs now being arranged for them.

Pacific Coast Gas Association activities in the appliance and equipment field were reported on at the Association's directors meeting by G. A. Gabriel, president of Monarch Heating Company, Los Angeles, and chairman of the Association's manufacturers section.

NEWS → *from Page 58*

ask dealers to serve as display centers for those who plan to do their shopping somewhere else. Yet this is precisely what manufacturers do when they abdicate their responsibility for a retail price policy."

The Servel organization, said Jones, believes that stockpiling, selling and servicing costs cannot be eliminated without impairing the full service value behind any product and "those who represent that they can sell trade-marked products to consumers at wholesale encourage this illusion."

This Label on Your PACKAGING Indicates That You Are a Certified Shipper!

PRE-TESTED
SAFE TRANSIT SHIPMENT
This PACKAGED PRODUCT meets the pre-testing standards established by the National Safe Transit Committee and will withstand ORDINARY transportation and handling hazards.
NATIONAL SAFE TRANSIT COMMITTEE
MAKE SAFE HANDLING YOUR JOB!

Many thousands of dollars are lost annually in damage claims caused by faulty packaging. As one of the laboratories certified by the National Safe Transit Committee, the United States Testing Company, Inc., is authorized to issue Safe Transit Labels when packaging meets the Committee's Projects 1 and 1A. These labels on your packaging mark you as an approved and certified shipper.

If your packaging does not meet the Committee's requirements, our technicians are ready to cooperate with you in development work on improvements based on test results.

A letter or phone call will bring you complete information on our packaging testing service, how it provides vital protection to you, and how it solves your packaging problems. No obligation, of course.

UNITED STATES TESTING COMPANY, Inc.

Established 1880

HOBOKEN, NEW JERSEY

PHILADELPHIA • BOSTON • WOONSOCKET
CHICAGO • NEW YORK • LOS ANGELES
DENVER • MEMPHIS

Member of American Council of Commercial Laboratories

GRANITE CITY OPEN HOUSE

Granite City Steel Co., Granite City, Ill., marked the completion of the firm's long-range $22 million modernization program, June 14 and 15, with an open house celebration for employees and their families.

INLAND STEEL EX-HEAD DIES

Charles Hart, former president of Inland Steel Company, Chicago, and retired owner-president of Delaware Steel Co., Chester, Pa., died May 23 at the age of 81.

ELECTROMASTER COMPLETES ADDITION

The Electromaster Division of Philco Corp., Mt. Clemens, Mich., manufacturers of electric ranges, will have a new one-story addition to the plant ready for use on or before July 1, according to Henry H. Hubbard, vice president and general manager. It was stated that the addition, containing 33,000 square feet of floor space, will primarily be used for storage of materials.

MONITOR EQUIPMENT LAUNCHES NEW WASHER

Monitor Equipment Corp., New York, has announced that national advertising backing their new Prestomat washer will appear soon in a number of magazines, including Good Housekeeping, Ladies' Home Journal, Family Circle, Parents' Magazine, and Woman's Home Companion.

Paul B. Zimmerman, executive vice president of Monitor, said that both the new washer and their older Aerator model have only one moving part in the washing tub—a flat wheel encased in the wall of the tank to create air and water current.

AGA NAMES HALL ASS'T MANAGING DIRECTOR

Edwin L. Hall, director of the American Gas Association Labora-

tories at Cleveland and Los Angeles, has been appointed an assistant managing director of the American Gas Association, it was announced by Carl H. Wolf, managing director of AGA.

Hall joined AGA in May, 1945, as coordinator of gas production research. He was appointed director of the Laboratories on November 1, 1947.

RAYMERSION OVEN BUSINESS SOLD TO JENSEN SPECIALTIES

The Trumbull Electric Mfg. Co., of Plainville, Conn., has announced the sales of its Raymersion oven business to Jensen Specialties, Inc., of Detroit. Raymersion was the trade name given to Trumbull's infra-red oven heating process.

It was stated that the Jensen organization should be contacted for new installations and for servicing old installations.

Paul H. Goodell, formerly manager of Raymersion oven sales for Trumbull, is now with the Jensen Specialties organization.

BURENS NAMED ACTING GENERAL MANAGER OF LOCKE, INC.

George E. Burens, manufacturing manager of General Electric's affiliated manufacturing companies department, has been named acting general manager of Locke, Inc., a G-E affiliate with headquarters in Baltimore, it was announced by Roy W. Johnson, vice president and general manager of the G-E affiliated manufacturing companies department.

It was stated that R. G. Bellezza, president of Locke, will devote full time to utilities' and industrials' marketing activities.

PORCELAIN ENAMEL SIGN COLORS NOW STANDARDIZED, SAYS NESA

The National Electric Sign Association has announced that, with the cooperation of the Porcelain Enamel Institute, a set of standard porcelain enamel sign colors has been developed and will shortly be available to sign manufacturers.

The new porcelain enamel standard color series will enable any sign manufacturer to order by shade and number from any porcelain enameler the particular color he wants. He will know exactly what he will get, without depending upon someone's ability to match a painted sample, it was stated.

The series parallels most of the colors contained in the Outdoor Advertising Association's standard color chart for poster colors and utilizes the same number designations. It was pointed out that each of the 25 colors in the series was approved and matched by the frit and oxide manufacturers who composed the Color Committee appointed by the Porcelain Enamel Institute to work with the National Electric Sign Association in this development.

Electric sign manufacturers interested in the standard color series can obtain information by contacting their porcelain enamel supplier, or by writing to the National Electric Sign Association, 224 S. Michigan Ave., Chicago 4, Ill., or the Porcelain Enamel Institute, 1010 Vermont Avenue, N. W. Washington 5, D. C.

IT'S NEW——
a low cost Collapsible Pallet Box

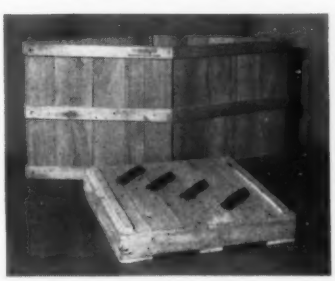
Here's a brand new money saver for in-plant storage and handling of materials and for outside shipments too. Its low initial cost will save thousands of dollars for plants using pallets in quantity.

The new B-G Collapsible Pallet Box is light in weight but built strongly enough to handle weights up to 3000 lbs. and is sturdy enough to stand up under many repeated shipments.

The collapsible feature is made possible by the exclusive Bigelow-Garvey TIGHT CORNER hinge design used on all of our collapsible wood shipping crates.

Used as a storage box, a tote box or as a shipping container, you will like this sturdy but inexpensive addition to effective materials handling.

Above: Photo shows how pallet box is easily attached to any standard pallet by means of 4 corner irons and a single steel strap, either flat or round.



Right: Photo shows hinged box collapsed for storage or return shipment. Tops can be furnished if desired.

WRITE FOR COMPLETE DETAILS AND PRICES TO . . .

BIGELOW-GARVEY LUMBER CO.

General Office and Laboratory

320 West Huron Street • Chicago 10, Ill.

Mills: Arkansas • Georgia • Wisconsin • Minnesota • Illinois

THOR SALES APPOINTMENT

Emil G. Best, sales promotion manager, Thor Corporation, has been appointed advertising manager, succeeding William D. Stroben who resigned, it has been announced. Prior to joining the Thor organization in May, 1949, Best was advertising manager of the special accounts division of Ekco Products Co.

FERRO BUILDING NEW PLANT IN MEXICO CITY

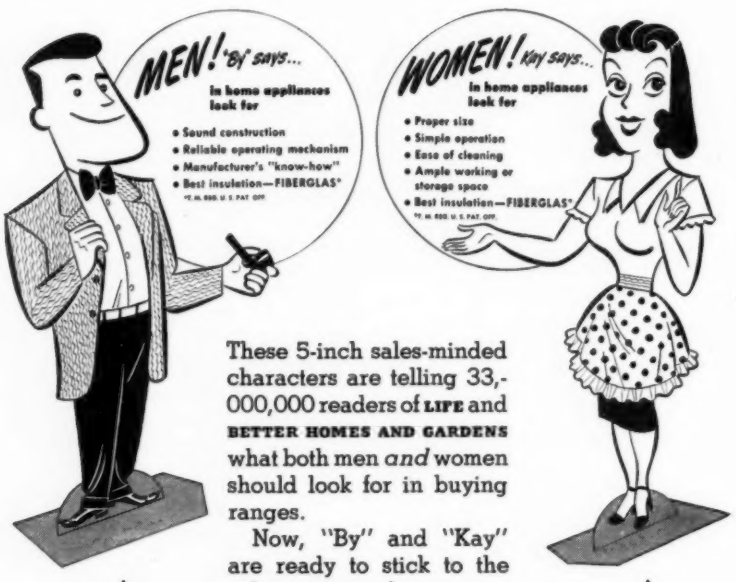
C. D. Clawson, president, Ferro Enamel Corporation, Cleveland, Ohio, has announced that Ferro will start construction of a new $250,000 plant in Mexico City about July 1.

The new plant, the first frit-making plant in Mexico, will be the eighth in Ferro's string of foreign subsidiaries. The other seven are in Canada, England, Australia, France, Holland, Brazil, and Argentina.

The Mexican plant will be run by Ralph Bevis, who for 14 years has run the Ferro-Argentina plant. Ralph Fry, who has been in charge of the Mexican office, has been transferred to Brazil where he will direct the company's technical activities. The new manager of Ferro of Argentina will be T. G. Greig, it was stated.

Talk about salesmen with contacts!

"By" and "Kay" Factor have 33,000,000 friends and can help you sell 'em your appliances



"By's" base has a special adhesive that sticks to any dry surface.

These 5-inch sales-minded characters are telling 33,000,000 readers of LIFE and BETTER HOMES AND GARDENS what both men *and* women should look for in buying ranges.

Now, "By" and "Kay" are ready to stick to the sides or tops of ranges on sales floors—to remind buyers how to buy, and sellers how to sell—with Fiberglas* Insulation.

Get your supply of these sales aids from your range supplier.

"Kay's" base has a special adhesive that sticks to any dry surface.

OWENS-CORNING
FIBERGLAS CORPORATION
Dept. 109-G, Toledo 1, Ohio

OWENS-CORNING FIBERGLAS
Appliance Insulation

*FIBERGLAS is the trademark (Reg. U. S. Pat. Off.) of Owens-Corning Fiberglas Corporation for a variety of products made of or with glass fibers.

FIBERGLAS IS IN YOUR LIFE...FOR GOOD!

Latest Companies Certified by Safe Transit Committee

American Central Div., Avco Corp.
Connersville, Indiana

The Bellaire Enamel Company
Bellaire, Ohio

Conlon Bros. Mfg. Co.
Chicago, Illinois

Cribben and Sexton Company
Chicago, Illinois

The Floyd-Wells Company
Royersford, Pennsylvania

Nashville Division, Avco Mfg. Corp.
Nashville, Tennessee

United States Stamping Company
Moundsville, West Virginia

(see complete listing on page 77)

W. B. KEEFE SET TO EXPLAIN SAFE TRANSIT ON WEST COAST

The National Safe Transit Program was the subject of a talk scheduled for Friday, June 30, at Railway Express Agency, Pier No. 14, San Francisco, California, by W. B. Keefe, of Westinghouse Electric Corporation. Mr. Keefe is well known in the packaging engineering field, and is a member of the Coordinating Group of the National Safe Transit Committee.

GENE HOWE RETURNS TO CHI VIT

It is reported that E. E. (Gene) Howe, formerly manager of ceramic division, Lustron Corp., Columbus, Ohio, has returned to his former company connection, Chicago Vitreous Enamel Product Company. The company reports that Howe will be given special staff assignments.

FRAZIER JOINS MURRAY MFG.

J. W. "Jack" Frazier, formerly with V. B. Punderson Co., manufacturers of metal cleaners, has joined the organization of Murray Manufacturing Co., Murray, Ky.

Summer market

→ *from Page 46*

Oriole gas ranges.

Along with its line of washing machines, One-Minute Washer presented new twin laundry tubs finished completely in porcelain enamel.

Norge's feature attraction was a gas range with an electric ignition system for lighting the top burners as well as the oven.

Westinghouse featured an undercounter model dishwasher which could be rolled out of the way under any standard work surface in the kitchen. Also exhibited was a new automatic washer with a "weigh to save" door.

Temco unveiled their new automatic gas clothes dryer.

Hamilton displayed what they claimed was the "only complete line of automatic clothes dryers."

Detroit Vapor showed gas ranges in "decorator" colors such as soft pastel yellow and green, as well as the traditional white.

Murray Corporation showed its new line of matched steel kitchens, electric ranges, gas ranges and plumbing fixtures.

Gibson exhibited a new 18 cu. ft. home freezer which is claimed to hold up to 630 lbs. of food.

Study of the effects of decolorizing agents

→ *from Page 31*

and produced a principal wavelength within the green range. However, both showed considerable variance in reflectance over the firing range.

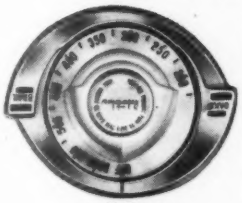
Sb_2O_3 and $SnCl_2$-AuCl increased the color and reflectance stability, but neither increased the reflectance of the base enamel to any degree. The $SnCl_2$-AuCl addition produced no outstanding reflected color but did modify the cream color of the base enamel. The Sb_2O_3 addition improved the color of the base enamel but produced a principal reflected wavelength in the green to yellowish-green range.

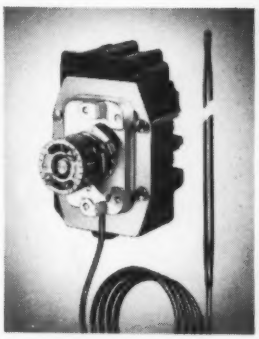
The outstanding decolorizing agents used in this investigation were selenium metal and tungstic oxide. These minor additions produced an enamel with high reflectance, a blue to green cast, excellent color stability, and excellent reflectance stability.

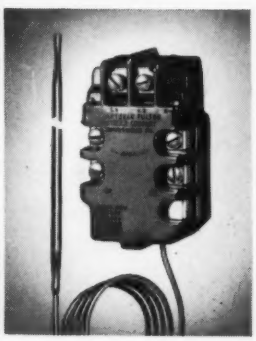
It must be understood that only one base enamel was used in the preceding tests. Nevertheless, it is reasonable to believe that these decolorizing agents would have similar effects on other commercial enamels. Perhaps additions smaller than 0.1 per cent would be just as effective in producing the desired color, reflectance, and stability.

1. G. Johnson and W. A. Weyl, "Influence of Minor Additions On Color and Electrical Properties of Rutile," J. Am. Ceram. Soc., 32 (12) 398-401 (1949). 2. "Ball Mill Wet Grinding of Porcelain Enamels," Tech. Bulletin No. T-8, June 1945.

New Robertshaw
3 in 1 Control
FOR ELECTRIC RANGE OVENS







AUTOMATICALLY 1
Cuts in two oven elements for quick preheating

AUTOMATICALLY 2
Cuts out top element shortly before oven reaches preheat temperature minimizing overshoot

AUTOMATICALLY 3
Cuts in lower element and maintains oven temperature on that circuit only

A new high degree of automatic control of oven temperature is made possible by the new complete line of Robertshaw Electric Thermostats. The model illustrated combines the thermostat with automatic switching mechanism in a compact, easy-to-install case. Four mounting positions are provided, together with close-up or extended bezel to fit any switch panel in range-top or mantel-back position.

All operating parts have been reduced in size, and terminal screws are recessed to save space. Screws are inserted from rear, increasing accessibility and simplifying installation.

Complete line consists of three basic models. Write for complete information.

In home and industry, EVERYTHING'S UNDER CONTROL
Robertshaw
THERMOSTAT DIVISION
ROBERTSHAW-FULTON CONTROLS COMPANY
YOUNGWOOD, PENNSYLVANIA

Vernon Mills and Herbert E. Mills, of Mills Engineering Company, are shown with Glen Butcher, right, of The Sunray Stove Company.

Time out from the business sessions was taken by F. C. Manss, left, Andes Range, and W. J. Wildern, Detroit Brass & Malleable.

finishfotos

Snapshot shows a group of stove men in the booth of Nubian Paint and Varnish Company, Division of The Glidden Company.

ICHAM annual meeting

→ *from Page 37*

Exclusive Mousetrap," B. B. Zients, vice president, City Stores Mercantile Co., New York City, told the general session audience that "America stands today, a monument to generations of alert and hardworking salesmen . . . not to the sort of salesmen who might have described what they were doing simply in terms of "I'm Selling Goods" or "I'm Earning Five Per Cent Commission," but . . . *"I'm Building a Nation!"*

Individual business related to public service standards

Marvin Bower, partner, McKinsey & Company, management consultants, was the last guest speaker on the general session program. His address was entitled "The Master Touches in the Art of Earning a Profit."

"Earning maximum profits under the capitalistic system requires that the individual business meet public service standards in a democratic manner," declared Mr. Bower.

"The greatest profit earners are companies which produce products that are most wanted by the consumer —wanted because of benefits the product will provide at prices consumers consider reasonable. Thus, under the capitalistic system, profits are the reward for producing better and better products at lower and lower prices.

"And most profitable concerns have found that this kind of business performance requires broad participation in decision making within the company. This is possible only when top management decentralizes profit responsibility and creates a democratic atmosphere within which to work."

Six questions

Based on his experience in serving outstanding profit earners, Bower listed six questions that any top management might ask itself in setting up their business to earn maximum profits:

(1) Why should the consumer buy our products rather than those of competitors?

(2) Why should our distributors

and dealers handle our products rather than those of competitors?

(3) Do we plan our profits in advance?

(4) Do we have an adequate staff of specialists with responsibility for reducing distribution, manufacturing and other costs?

(5) Does every executive—including junior executives—know the costs of activities under his direction and how to control these costs?

(6) Is every executive—including junior executives—made an effective member of the profit earning team through decentralization of profit responsibility and the use of management practices that produce real participation?

"If any top management will make a real effort to develop specific answers to these six questions, it will be well on the way to setting the business up to do the kind of job for the consumer that will entitle the business to earn profit rewards for the public service the business will be performing," concluded Bower.

Institute divisions meet

The various divisions, committees and sections of the Institute held their own business and discussion meetings. The program listing of the chairmen of these meetings, and some of the discussion leaders, indicates the industry-wide scope of ICHAM.

Kerosene stove division — presiding, John M. Bayer, sales manager, Lorain Division, American Stove Company.

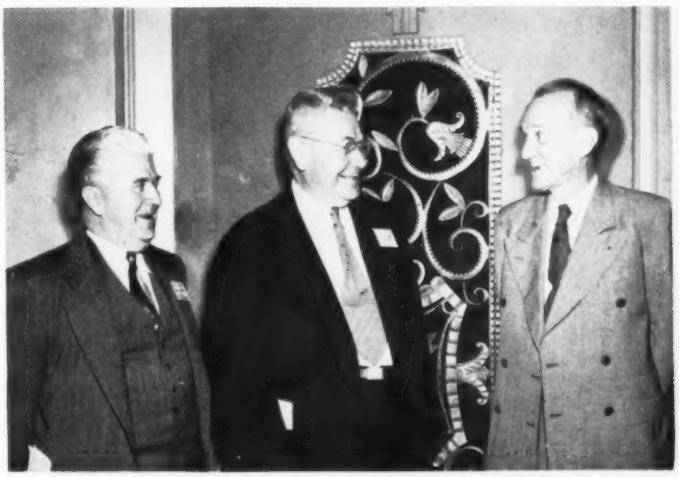
Export committee — presiding, W. M. Bonnell, export manager, The Tappan Stove Company; discussion leader, Arch. Black, vice president, Borg-Warner International Corp.

Oil division technical section—presiding, Roy W. Johnson, president, Automatic Products Company.

Coal stove promotional committee—presiding, H. M. Scott, sales manager, Ohio Stove Company.

Electric range division—presiding, E. A. Lindemann, president, A. J. Lindemann & Hoverson Company; discussion leaders, Gordon P. Hentz, general sales manager, Estate Heatrola Division, Noma Electric Corp., and John A. Drake, director of

Phyliss Marlowe, attired in porcelain enamel, gave the stove men something to talk about when they passed PEI booth (see page 75.)



E. K. Priest, left, of Lynn Products, George H. Anderson, Office of Quartermaster General, and Robert Hurt, Hardwick Stove Company.

finishfotos

Another group of men attending the annual stove meeting are shown in the booth of Owens-Corning Fiberglas Corporation.

market research, Norge Division, Borg-Warner Corp.

Gas space heater and floor furnace division—presiding, F. D. Hart, executive vice president, Temco, Inc.

Gas and combination range division—presiding, George E. Mumma, president, The Sunray Stove Company; discussion leaders, F. A. Weaver, director of market research, The Tappan Stove Company, and J. A. Hand, purchasing officer, Newark Stove Company.

Oil division—presiding, Dean Olds, chief design engineer, major appliances, The Coleman Company, Inc.; panel discussion leaders, Walter F. Muhlbach, Florence Stove Company, W. T. Trueblood, Jr., American Stove Company, Sheldon Coleman, The Coleman Company, Inc., and M. F. Cotes, Motor Wheel Corp.

Solid fuels division—presiding, Kenneth H. Brown, secretary-treasurer, Brown Stove Works, Inc.

Financial, accounting, and credit executives—presiding, John J. Collins, vice president, Crown Stove Works; discussion leaders, K. C. Hampel, Odin Stove Manufacturing Co., W. E. Friend, Wrought Iron Range Company, Fred C. Miller, Grand Industries, Inc., B. R. Tritton, American Stove Company, and C. B. Kuhn, The Coleman Company, Inc.

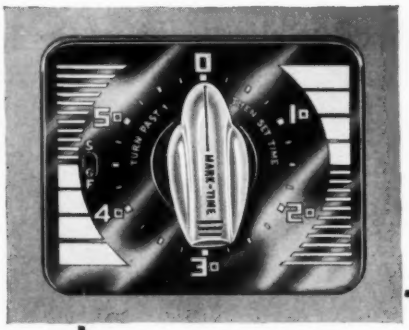
Labor relations and factory management officials—presiding, W. J. Roney, administrative assistant to president, Newark Stove Company; discussion leader, Carl P. Bersing, director of industrial relations, Norge Division, Borg-Warner Corp.

Sales, advertising, and marketing research officials—presiding, Sheldon Coleman, executive vice president, The Coleman Company, Inc.; discussion leaders, A. B. Ritzenthaler, The Tappan Stove Company, Walter F. Muhlbach, Florence Stove Company, John A. Drake, Norge Division, Borg-Warner Corp., C. Fred Lucas, Florence Stove Company, and Norman Kreuter, Geo. D. Roper Corporation.

Top management executives—presiding, Samuel Dunckel, managing director, Institute of Cooking and Heating Appliance Manufacturers.

Sleeve-type burner division—C. O. Slaby, sales manager, heater division, Florence Stove Company.

Do
TWO JOBS
with the Same
TIMER

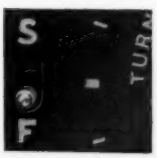


Extra Sales Appeal at Lower Cost with MARK-TIME *Two-Speed* BELL TIMER

Accurate timing for the pressure cooker or extended time for cake baking

This same timer... with the same 360° dial... runs a 6-minute cycle with fractional-minute timing, or with a change of the lever, runs a 60-minute cycle. This revolutionary new Mark-Time bell timer, ruggedly built with a minimum of parts, is engineered for economical installation in your range.

Write today for complete details of No. 2100 series.



Lever shown at "F" for 6-minute cycle. Just flick to "S" for 60-minute cycle. Other comparable timings available in 10 to 1 ratios.

MARK-TIME

M. H. RHODES, INC.
Dependable Timing Devices
30 BARTHOLOMEW AVE., HARTFORD 6, CONNECTICUT
In Canada Send Inquiries to: Ontario Hughes Owen Co. of Ottawa, Canada

Promise and threat...

→ *from Page 25*

ess of "managed inflation" successfully and without coming a cropper.

Up until recently, the disinflationary effects of expanding production, managerial efficiency, and market competition have largely offset inflationary effects of deficit spending well enough so that the general price index has been remarkably stable. In the last few weeks, it has begun to move up at a faster pace, and from here on it might show signs of upward spiralling. This would be true if the public decides that prices have broken away from their moorings and they start to "hedge against inflation." That could give us an explosive end to an inflationary boom, followed by depression.

No one is smart enough to know what interpretation millions of businessmen, bankers, private investors, home buyers, and housewives are going to put on this very touchy situation. They might react in just the opposite way, become uncertain about the future of the dollar, withdraw from market purchases or business expansion, and thus bring on business stagnation without a previous "blow-off" of the boom.

A sounder foundation

In my old-fashioned book of economics, this is the threat in our present business situation. I believe the way to meet it is to face the facts, bring public spending in line with revenue, and put our government on a thoroughly solvent basis. Of course, that woud, in the short run, rub some of the boom off our present prosperity but would make a sounder foundation on which to build long-run prosperity.

Highlights of an address before the 18th annual convention of the Institute of Cooking and Heating Appliance Manufacturers.

Solid-phase hot pressure welding

→ *from Page 21*

pressures employed, and by the fact that the metal remains in a plastic state and does not actually melt.

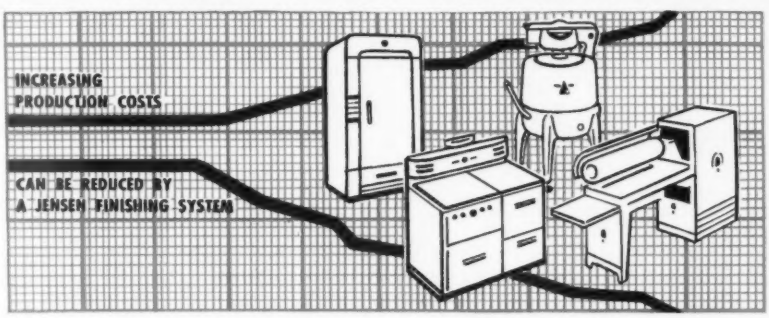
Portable equipment practical

Portable pressure welding equipment has proved of great value to the oil and railroad industry where it is used extensively in the butt welding of pipe line segments and railway rails. Unlike fusion welding (either gas or arc) which must be accomplished progressively, it requires no more time to pressure weld a 48-inch pipe with a ½-inch wall than it does a 2-inch pipe with a ½-inch wall. This is because the encircling heating head brings all portions of the pipe to the right plastic condition at the same time.

The upsetting machines employed in hot pressure welding vary according to maximum pressures required and the type of work being done. Many such upsetting machines are commercially available; others operating with equal success have been designed and built by company tooling departments. How the pressure is generated is not important, and the speed of pressure application in upsetting, within reasonable limits, is not critical. Small, hand-operated platen presses have been used with complete success in the pressure welding of valve stems. Pressures can be applied directly from each side of smaller parts. Continuous parts, such as railway rails, steam pipes, or oil line pipes, require the use of a side gripping machine. Circular parts can be pressure welded using a "C" shaped jig, hinged in the middle of its back, and equipped with flanges for attachment to the pressure platens of the upsetting machine.

The five principle variables encountered in solid-phase hot pressure welding are: (1) maximum pressure required, (2) upset travel in inches, (3) acetylene flow to the heating

TODAY'S COMPETITION DEMANDS THAT YOU REVIEW YOUR FINISHING COSTS



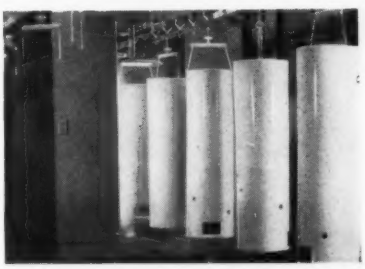
YOU MAY FIND THE WAY TO LOWER PRODUCT PRICES WITH A JENSEN FINISHING SYSTEM

Today, cost-conscious manufacturers whose operations involve low temperature baking, drying, preheating or dehydrating, are cashing-in on the money-saving advantages of infra red radiant heating *plus* coordinated conveying to be found in Jensen Finishing Systems.

Jensen Finishing Systems are *engineered for economy*—designed to increase production and minimize rejects; produce a uniform, finer, tougher finish, using less man hours, less floor space.

ABSOLUTELY WITHOUT COST OR ANY OBLIGATION TO YOU

Let us conduct laboratory tests on *your* products, using *your* finishes. Parts will be promptly returned for your inspection, together with recommendations to meet your production requirements. *You get practical proof of every possible cost saving.*



● **Once considered impossible to accomplish with infra red, this Jensen "Dual Heat" *nested-lamp* oven dependably bakes a uniform white and ivory enamel finish on water heater jackets—delivers faster, better results, *plus* over-all economies. *Have you an "impossible" job that needs doing? Let's discuss it.***

Jensen SPECIALTIES INCORPORATED
● Representatives in Principal Cities
9331 FREELAND AVENUE ● DETROIT 28, MICHIGAN
MANUFACTURERS OF *ECONOMY-ENGINEERED* RADIANT HEAT EQUIPMENT
"DUAL HEAT" INFRA RED OVENS • CONVEYORS • PAINT DIP TANKS

head, (4) oxygen flow to the heating head, and (5) heating time to bring the metal to the right plastic state. It is quite obvious that any upsetting machine of sufficient size for the work involved can be tooled for automatic control of these variables. An automatic cut-off will control the upset travel distance; flow meters can be used to control the amount of oxygen and acetylene gas reaching the heating head blow pipes. These same flow meters will control the heating interval prior to upsetting once a constant for each type of work is established. Much as in flashwelding, this constant is established by pressure welding several experimental parts. It is arrived at by calculating that so much gas flowing through the same heating head for so many seconds will raise similar parts to the same degree of temperature.

An idea of what can be accomplished by pressure welding is in evidence at the Claude C. Slate Company, Los Angeles, a jobbing shop engaged almost exclusively in pressure welding activities. Slate built his own upsetting machine, hydraulically operated, with the automatic controls named above. Although a relatively new enterprise, the company is already pressure welding critical components for the aircraft industry, for oil field rigging, and for shipyard use. One high alloy steel ring, machined after pressure welding, is used as a jet blast tube support in jet-powered airplanes. Other pressure welded rings are used in oil field and shipyard rigging where they must operate under tremendous loads and unexpected failure would endanger much property and many lives.

"Hot pressure welding is adaptable to practically any butt welding job," Slate says. "Repetitive work can be accomplished cheaper, and results will be more dependable than with either fusion or flashwelding. Because of the low temperature required to reduce the metal to a plastic state rather than a liquid state, less metallurgical disturbance is involved. Also, because no filler metal is used, the alloy characteristics of the metal are not altered, and its tested and approved physical characteristics remain the same."

Pressure welding is gradually gaining a foothold on many production lines. It is logical to assume that its use will become widespread as its advantages become better known. There are hundreds and thousands of welding jobs being done today that could be accomplished better by pressure welding than by the process currently in use. This holds true in small parts fabrication as well as in the butt welding of more massive components.

The least anyone can do who is faced with a welding problem is to investigate the process thoroughly in the light of his own immediate needs. Pressure welding is well beyond the experimental phase. Accurate data is available from major welding equipment manufacturers. The cost of installing pressure welding equipment is not excessive. Without doubt, in the near future, this process will dispell many a welding bottle-neck now haunting production lines in factories and shops throughout the nation.

Slash Fastening Costs on LIGHT SHEET METAL ASSEMBLIES!

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SELF-LOCKING NUTS

Handle ONE part instead of THREE

Inexpensive, one-piece PALNUT Washer Type Self-Locking Nuts perform the same function as an ordinary nut, lockwasher and plain washer combined. You not only save parts and handling operations, but power drivers may be used to further speed up assembly. The famous PALNUT Double-Locking action holds tight under vibration. Built-in washer spans holes and slots. Wide range of sizes available. Send details of assembly for samples. Ask for literature on entire PALNUT line.

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"All manufacturing, engineering and quality efforts are in vain if the product reaches its destination in a damaged condition."

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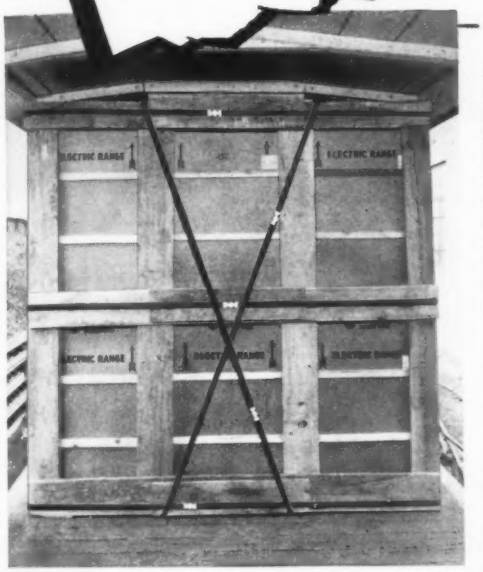

Signode manufactures steel strapping, strapping tools and seals . . . but that isn't all! Signode also offers its customers, large or small, a complete system of product protection. This service begins in your shipping room with a qualified analysis of your packing and shipping practices, follows with recommendations for improvements in container design and car bracing methods, ends only when your product is delivered to your customer in the same fine condition it left your plant.

Back of this operation are the most extensive research facilities in the steel strapping industry . . . a packaging laboratory, a full-size outdoor railroad test track, a staff of engineers who spend all their time working with customers in the field —to mention only a few.

If you would like to find out what we've learned about shipping products like yours . . . better, faster, at less cost . . . write

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STEEL STRAPPING COMPANY

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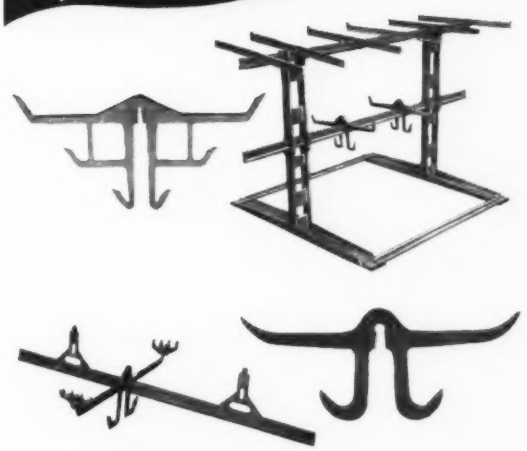
AN ALL-PORCELAIN ENAMEL COSTUME

TO demonstrate the flexibility and the color possibilities in porcelain enamel, this young lady, Miss Phyliss Marlowe, was attired in porcelain enamel for her appearance at the Porcelain Enamel Institute booth at the recent meeting of the Institute of Cooking and Heating Appliance Manufacturers in Cincinnati.

Light gauge steel strips, porcelain enameled in many colors, were cut with ordinary tailor shears and combined with a few bits of adhesive tape to complete this unusual costume.

If YOU DON'T SEE IT HERE ---- IT'S PROBABLY IN OUR CATALOG



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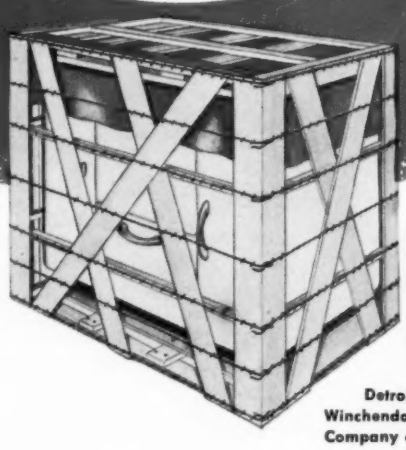
HERE'S PROOF—

No. 7105	
Gross Shipping Weight	
Old Package	410 lbs.
*New Package	364 lbs.
Weight Saving	46 lbs.

No. 7038	
Gross Shipping Weight	
Old Package	120 lbs.
*New Package	104 lbs.
Weight Saving	16 lbs.

No. 7023	
Gross Shipping Weight	
Old Package	39 lbs.
*New Package	34 lbs.
Weight Saving	5 lbs.

No. 7147	
Gross Shipping Weight	
Old Package	95 lbs.
*New Package	83 lbs.
Weight Saving	12 lbs.



* "New Packages" were designed in our Designing and Testing Laboratories. Many of the hundreds of case histories on file show even greater weight savings!

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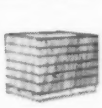
General Wirebound Crate

General Nailed Box

General Corrugated Box

General Cleated Corrugated Container

General All-Bound Box



Generalift Pallet and Pallet Box

General Watkins-Type Box

Companies cooperating in Safe Transit program

THE following companies are certified under the National Safe Transit Program. They are privileged to use the N.S.T. Label.

American Central Div., Avco Corp.
Connersville, Indiana

American Stove Company
Cleveland, Ohio

American Stove Company
St. Louis, Missouri

Andes Range & Furnace Corporation
Geneva, New York

Apex Electrical Manufacturing Co.
Cleveland, Ohio

Appliance Manufacturing Company
Alliance, Ohio

Automatic Washer Company
Newton, Iowa

The Bellaire Enamel Company
Bellaire, Ohio

Belmont Stamping & Enameling Co.
New Philadelphia, Ohio

Caloric Stove Corporation
Topton, Pennsylvania

Canton Stamping & Enameling Co.
Canton, Ohio

Central Rubber & Steel Corporation
Findlay, Ohio

Chambers Corporation
Shelbyville, Indiana

Conlon Bros. Mfg. Co.
Chicago, Illinois

Conlon-Moore Corporation
Chicago, Illinois

Cribben and Sexton Company
Chicago, Illinois

Crosley Division, Avco Mfg. Corp.
Richmond, Indiana

Crunden Martin Manufacturing Co.
St. Louis, Missouri

The Dexter Company
Fairfield, Iowa

Federal Enameling & Stamping Co.
Pittsburgh, Pennsylvania

The Fletcher Enamel Company
Dunbar, West Virginia

The Floyd-Wells Company
Royersford, Pennsylvania

General Electric Company
Erie, Pennsylvania

Globe American Corporation
Kokomo, Indiana

Hardwick Stove Company
Cleveland, Tennessee

Hotpoint, Inc.
Chicago, Illinois

International Harvester Company
Evansville, Indiana

Kaiser Metal Products, Inc.
Bristol, Pennsylvania

Landers, Frary & Clark
New Britain, Connecticut

A. J. Lindemann & Hoverson Co.
Milwaukee, Wisconsin

Lisk-Savory Corporation
Buffalo, New York

Malleable Iron Range Company
Beaver Dam, Wisconsin

The Maytag Company
Newton, Iowa

Moffats, Limited
Weston, Ontario, Canada

The Moore Enameling & Mfg. Co.
West Lafayette, Ohio

Murray Corporation of America
Scranton, Pennsylvania

Murray Manufacturing Company
Murray, Kentucky

Nash-Kelvinator Corporation
Grand Rapids, Michigan

Nashville Division, Avco Mfg. Corp.
Nashville, Tennessee

National Enameling & Stamping Co.
Milwaukee, Wisconsin

Norge Division, Borg-Warner Corp.
Effingham, Illinois

Norge Division, Borg-Warner Corp.
Herrin, Illinois

Norge Division, Borg-Warner Corp.
Muskegon Heights, Michigan

Perfection Stove Company
Cleveland, Ohio

Philco Corp., Refrigerator Division
Philadelphia, Pennsylvania

Republic Stamping & Enameling Co.
Canton, Ohio

Geo. D. Roper Corporation
Rockford, Illinois

A. O. Smith Corporation
Kankakee, Illinois

Speed Queen Corp., Ironer Division
Algonquin, Illinois

The Tappan Stove Company
Mansfield, Ohio

Thor Corporation
Chicago, Illinois

PRE-TESTED
SAFE TRANSIT
SHIPMENT
This PACKAGED PRODUCT meets the pre-testing standards established by the National Safe Transit Committee and will withstand ORDINARY transportation and handling hazards.
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SAFE SHIPPING
1010 VERMONT AVE., N. W. WASHINGTON 5 D. C.
MAKE
SAFE HANDLING
YOUR JOB!

United States Stamping Company
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Westinghouse Electric Corporation
East Springfield, Mass.

Westinghouse Electric Corporation
Mansfield, Ohio

Certified Safe Transit Laboratories

Atlas Plywood Corporation
Lawrence, Massachusetts

Chicago Mill and Lumber Company
Chicago, Illinois

Container Laboratories, Inc.
Chicago, Illinois

Cozier Container Corporation
Cleveland, Ohio

General Box Company
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The Hinde & Dauch Paper Company
Sandusky, Ohio

Inland Container Corporation
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Package Research Laboratory
Rockaway, New Jersey

Packaging Service Corporation
Wyncote, Pennsylvania

Don L. Quinn Company
Chicago, Illinois

U. S. Testing Company, Inc.
Hoboken, New Jersey

The dress that needn't have been so beautiful

THERE'S NO REAL REASON for a girl to have the most beautiful dress in the world. Even my daughter Sally. Even if she has her heart set on it.

But—I bought it. And when I paid the bill, I whistled! Partly with the well-known father's bill-shock. Partly for happiness. Because, Sally was right—there never *was* a prettier dress to get married in.

It's times like that—when we can buy something really important even if it is a luxury—that I feel like such a lucky guy.

And times like when my wife got sick, and we could give her the good care she needed to get well. And the swell day-in, day-out feeling of *knowing* that if an emergency comes, you've got the money to meet it.

I know the luckiest day of my life was when I signed up to save regularly through the Payroll Savings Plan at the office. I'd tried every which way to save before, but, brother, this *automatic* way is the only way that *works—for you—all the time!*

Buying U. S. Savings Bonds . . . whether by the Payroll Savings Plan or the Bond-A-Month Plan . . . is the safest, "foolproofest," easiest method of saving since money was invented. And every $3 you invest will turn into $4 in just 10 years.

Automatic saving is sure saving—
U.S. Savings Bonds

Contributed by this magazine in co-operation with the Magazine Publishers of America as a public service.

How to handle enameled cast iron plumbing fixtures

as recommended by the Enameled Cast Iron Plumbing Fixtures Association

a photo story

ENAMELED cast iron plumbing fixtures are manufactured for installation in homes, and in schools, hospitals and other public buildings, and represent a long-term investment in convenience and sanitation.

Improper loading, unloading, or installation methods may damage the enamel surface fused to the cast iron base, delaying construction jobs, and causing loss of time, money, and good-will.

It is the problem of the manufacturers of plumbing fixtures and all other similar products to help educate all individuals, who have a part in loading, unloading, and transporting these products, concerning proper handling methods and the necessity for care in handling.

The accompanying brief photo story gives a few recommended pointers on this subject.

When unloading a boxcar, a strong plank should be used to slide large crated fixtures from top layers. Three men make a good working combination for unloading fixtures safely.

"Walking" or "rolling" a crated fixture is often the cause of damage. When necessary to move crate manually, use a hand truck. When hand truck is used workman should get a good firm grip on the crate, steadying the truck while loading. Bottom of tub should face the workman when pulling crate upon hand truck. When unloading truck, let crate down easily.

Many enameled products are damaged at transfer points and during local delivery. The correct way to unload a truck is to lift the crate or slide it down a heavy plank as shown. Large fixtures like bathtubs and sinks need two men. If only one man unloads, fixture might be dropped from truck platform causing serious damage.

Teach consignees that before signing delivery receipts, they should examine fixtures through the openings of crates. If condition of crate and fixture indicates careless handling, call carrier's claim agent at once. If in doubt, crates should be removed for examination of condition of fixtures, after which a claim should be filed.

First step for the manufacturer of enameled products is to determine without question that proper packaging and pre-testing procedure has been followed prior to shipping. Once this is done, some type of educational campaign to reach selling organizations is an important cog in the wheel of safe delivery.

Most crates are designed so that they can be easily opened from the bottom. It is only necessary to take off a few slats and blocking pieces to remove the fixture from the crate. Workmen must be educated in the proper use of pinch bar and nail puller so that neither will strike the fixture or pry against it.

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SITUATION WANTED by a graduate ceramic engineer, 10 years experience in research, shop operation, mechanical and structural engineering. **Address reply to Box 750-A, c/o *finish*, 360 N. Michigan Ave., Chicago 1, Ill.**

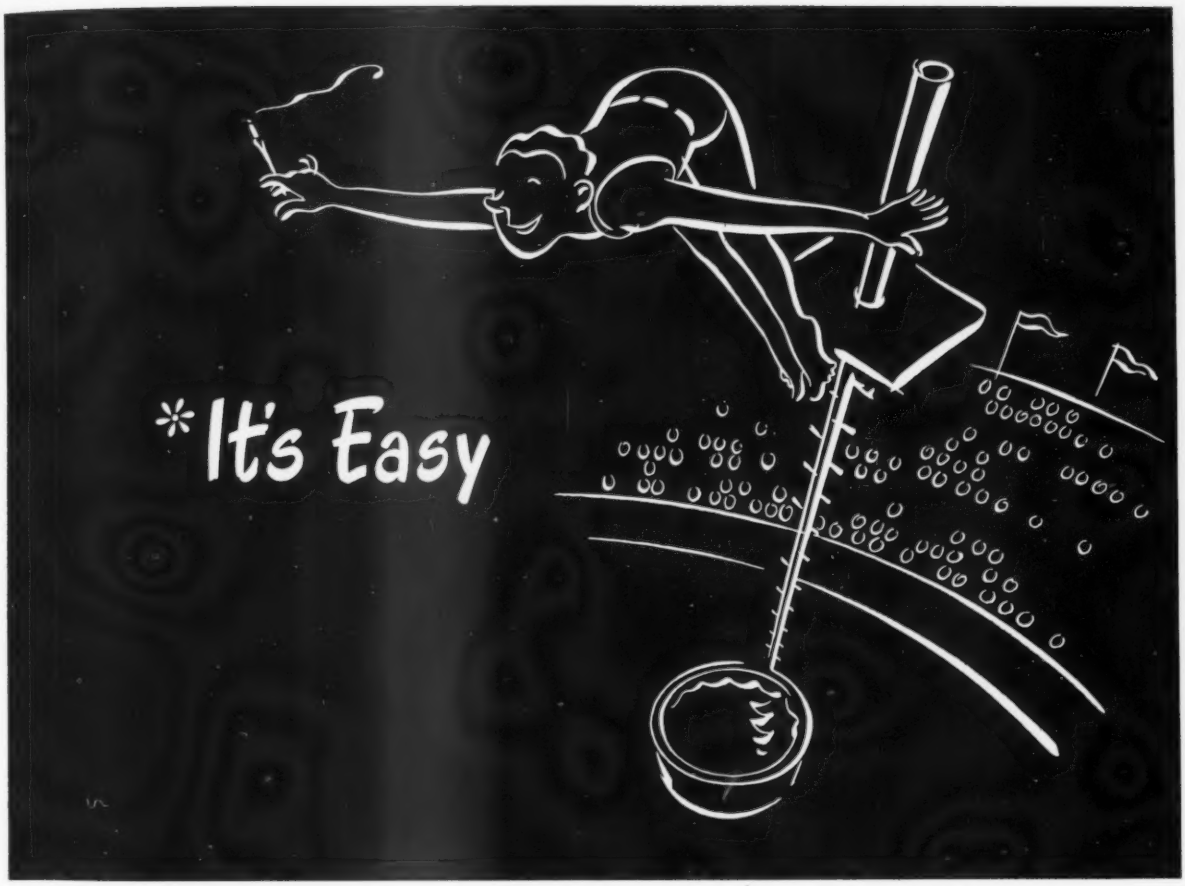
FOR SALE

73 Pieces Cast Duraloy-HL (30% Chrome, 20% Nickel), Heat Resistant Alloy Steel Top Hangers for Continuous Enameling Furnace. Never Used. Price reasonable.

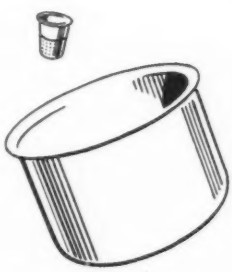
The Bellaire Enamel Company
Bellaire, Ohio

PREDICTS TRIPLE POWER INCREASE

Elmer Lindseth, out-going president of Edison Electric Institute, predicted at the EEI annual meeting, held in mid-June in Atlantic City, that in the next 20 years the growing U.S. economy will require three times as much electric power as the industry's present capacity.



*IF YOU KNOW HOW



We are equipped to handle stampings of all kinds, large or small, shallow or deep drawn anything from thimbles up.

He dives "through the air with the greatest of ease," into the waiting tank far below — and comes up without a scratch!

Yes, it takes skill to perform such hair-raising stunts, but nowhere nearly the skill required for the making, for example, of deep drawn stampings, which also must come out in perfect condition. Such intricate tasks require the work and skill of an entire staff of the most carefully trained and experienced craftsmen.

Thus it is that New Monarch, year after year, continues to produce so successfully countless items — from deep drawn stampings to completely assembled products. Our careful attention to detail and our determination to give a continuing "flawless performance" win and hold for us the confidence of satisfied customers, both old and new.

Our Engineering Department can assist you in your problems — dies, jigs, stampings and assembly, Complete from Blueprint to Shipping Carton. Write us today.

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When you think of Stampings, think of

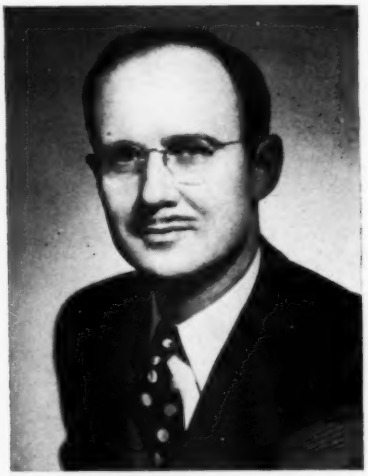
NEW MONARCH MACHINE & STAMPING CO.

406 S. W. NINTH STREET — DES MOINES 9, IOWA

TUTTLE & KIFT EXPANDS PLANT FACILITIES

G. W. Wallace, executive vice president, Tuttle & Kift, Inc., Chicago, has announced the completion of the first step in a new plant expansion program which will require a total expenditure of $475,000.

G. W. WALLACE



H. F. BOND

The first of two new buildings has just been completed, and new equipment, including a wholly automatic heating coil loading line, is now being installed.

Increased sales volume is given as the reason for the expansion. According to H. F. Bond, vice president in charge of sales, sales volume during the first part of 1950 has been running over 50% ahead of 1949, and is expected to go still higher. Sales for the month of May were the largest in the history of the company.

Tuttle & Kift, a subsidiary of Ferro Enamel Corporation, Cleveland, manufactures electric range surface units, oven units, switches, hot water heater units, and a complete line of industrial electric heating elements.

CLARENCE BATHER TO HEAD CARRIER COORDINATING DIVISION OF NATIONAL SAFE TRANSIT PROGRAM

Clarence S. Bather, of Geo. D. Roper Corp., Rockford, Ill., has been appointed permanent chairman of the Carrier Coordinating Division of the National Safe Transit Committee. This appointment was made by an unanimous favorable vote from the Coordinating Committee headed by R. F. Bisbee, of Westinghouse Electric Corp.

Mr. Bather replaces E. H. Shands, of Roper, who agreed to accept the temporary chairmanship until a permanent chairman could be found.

The new appointment was made on the basis of experience in the traffic world and to select a man who is respected by the carriers for his ability to be fair and yet aggressive.

Mr. Bather was born June 4, 1886, at St. Louis, Missouri; graduated from Benton College of Law, St. Louis, 1909 with an LLM degree; admitted to bar, 1909; admitted to practice before U.S. Supreme Court, 1914.

Assistant to freight traffic manager, St. Louis & San Francisco Railroad, 1910; commerce counsel, Texas City Terminal Company & Texas City Transportation Co., Texas City, Texas, 1910 to 1912; commerce counsel, Rockford Manufacturers' and Shippers' Association, 1912 to 1936; commerce counsel, Rockford Chamber of Commerce, 1936 to 1946; started own practice, 1946.

Appointed by the director general of Railroads as shippers' representative for Eastern District of United States Railroad Administration (22 months), 1918; served on board of National Industrial Traffic League, 1912 to 1932; council member, Illinois Industrial Council, 1912 to 1936; commerce counsel, National Furniture Association, 1915 to 1932; council member, Illinois Classification Revision Committee, 1922 to 1925; served on board of Illinois District Industrial Traffic League, 1922 to date; served on board of Midwest Shippers' Advisory Board, Association of American Railroads, 1926 to date; commerce counsel, National Stove Rate Corp., 1932 to date; and council member, Central States Rate Committee, 1937 to 1939.

All companies who are part of the National Safe Transit movement will be pleased with this new appointment as assurance of a very active program by the carrier groups.

MEACHAM RESIGNS CHI VIT TO JOIN AVCO

A report comes to *finish* from F. L. Meacham, vice president and general manager, Chicago Vitreous Enamel Product Company, that he has resigned his position (effective July 1) to join the Crosley Division of Avco Manufacturing Corp., as general factory manager.

F. L. MEACHAM

In his new position with Avco, "Meach" will have complete charge of manufacturing operations of the company's five plants at Cincinnati, Ohio; Richmond and Connersville, Indiana; Carrollton, Kentucky; and Nashville, Tenn.